



Bayt al-H ikmah

Knowledge and Wisdom in the
Islamic World

By Muhsin Dadarkar
Dr Uday Dokras

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Preceding Page (Bait-al-Hikmah as it looked during the Abbasid period. It was one of the world's biggest libraries founded by Abbasid Caliph Harun al-Rashid (786-809). Had more than 350,000 books.)

Bayt al-Hikmah

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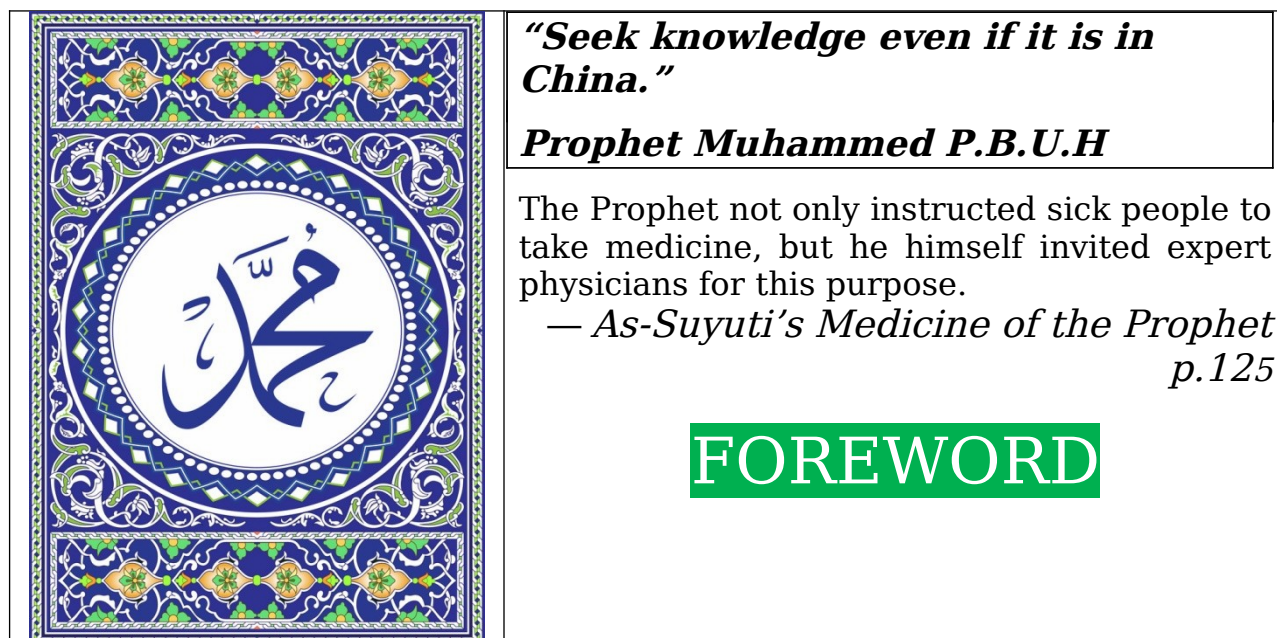
A C K N O W L E D G M E N T

To my late parents Professor Ahmad Bahauddin Dadarkar
Fatima Ahmad Dadarkar who made me what I am today.... and to my dear
wife Kabira Elgarrai and Lakht E Zahra Bint Haji Ghulam Rasool who is like
a daughter - all inspiring and encouraging me at every stage both of whom
are beyond and above the Shia-Sunni politics.

And also to Dr. Uday Dokras and his daughter. Srishti Dokras who inspired
me to start this journey as a writer and held my hand on the way

Mumtanat 'ilaa al'abad C O N T E N T S

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“Seek knowledge even if it is in China.”

Prophet Muhammed P.B.U.H

The Prophet not only instructed sick people to take medicine, but he himself invited expert physicians for this purpose.

— *As-Suyuti’s Medicine of the Prophet*
p.125

FOREWORD

Knowledge is defined as awareness of facts or as practical skills, and may also refer to familiarity with objects or situations. Knowledge is the engine that drives human development. “Knowledge institutions” are fundamental components of successful democracies. Knowledge institutions plainly include colleges and universities, which make up the system of higher education but also libraries and scientific research institutions. The term *library* is based on the Latin word *liber* for 'book' or 'document', contained in Latin *libraria* 'collection of books' and *librarium* 'container for books'. In short they are repositories of Knowledge. The community of science includes institutions and professional societies that support scientists physically, financially, and intellectually. Research institutions include universities, national laboratories, government

agencies, and corporations that all provide physical space and support for scientific research.

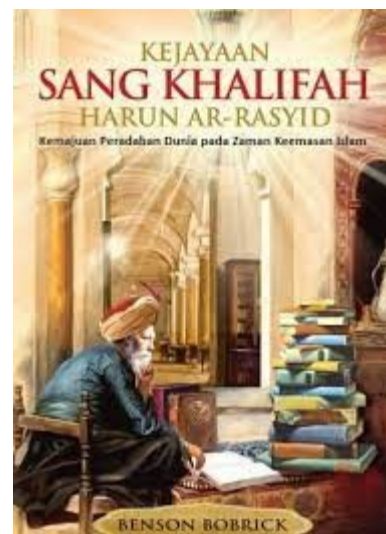
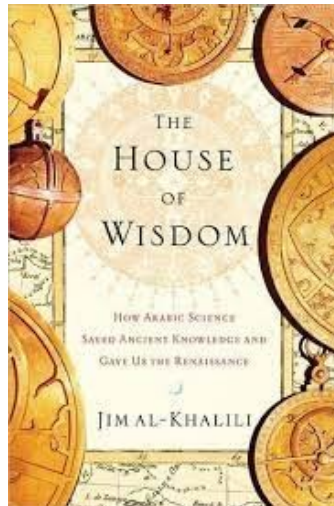
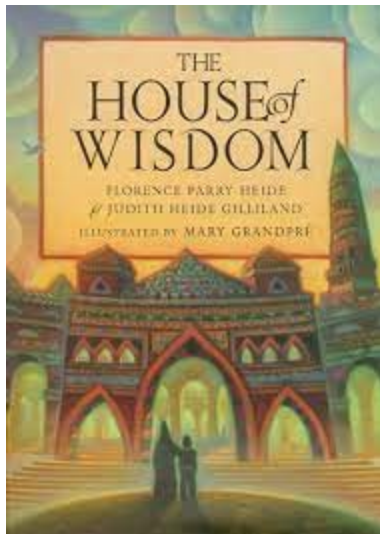
A study of the history of knowledge gives a better understanding of the history of science thus giving a more concise definition of the concept of knowledge, relating its cognitive and material and social dimensions. The history of knowledge comprises the history of institutions in which knowledge is produced and from which it is transmitted through the movement of students or teachers and scholars or all three.. This is an essential but hitherto neglected aspect of cultural evolution. Taking this aspect into account, one is led to the concept of extended evolution, which integrates the perspectives of niche construction and complex regulative networks. This book explores one of the earliest KNOWLEDGE REPOSITORY- the Bayt al-Hikmah.

In recent years, the migration of knowledge has become an active field of research but knowledge can migrate only from a place of assimilation and by human endeavour. The House of Wisdom was just that. It was known as *Dār al-ʿIlm* in Arabic and was an ancient university of the Fatimid Caliphate (today's Egypt), built in 1004 CE as a library and converted by the Fatimid Imam-Caliph al-Hakim bi-Amr Allah to a state university in the same year. **Some scholars say that the House of Wisdom- Bayt al-Hikmah,** was also known as the **Grand Library of Baghdad**, and refers to either a major Abbasid public academy and intellectual center in Baghdad as mentioned above or to a large private library belonging to the Abbasid Caliphs during the Islamic Golden Age. House of Wisdom was founded either as a library for the collections of the Caliph Harun al-Rashid in the late 8th century (then later turned into a public academy during the reign of Al-Ma'mun) or was a private collection created by Al-Mansur (reign 754-775) to house

The 15th-century historian al-Maqrizi records that "The House of Wisdom in Cairo did not open its doors to the public except before the furnishing, decoration and beautification of all the doors and corridors, and many servants were appointed. And the number of shelves in forty cabinets, each one of them could accommodate about eighteen thousand books. And (the shelves) were open, and books accessible to everyone. And one who wants a book, then the book can be easily found by him. If a book cannot be found by oneself, one can seek the help of hired handlers."The House of Wisdom and its contents were destroyed in the Siege of Baghdad in 1258, leaving relatively limited archaeological evidence for the House of Wisdom, such that most knowledge about it is derived from the works of contemporary scholars of the era such as Al-Tabari and Ibn al-Nadim.

In keeping with the Islamic tradition of knowledge, the Fatimids collected books on a variety of subjects and their libraries attracted the attention of

scholars from around the world. The Imam-Caliph al-Hakim was a great patron of learning and provided paper, pens, ink and inkstands without charge to all those who wished to study there.

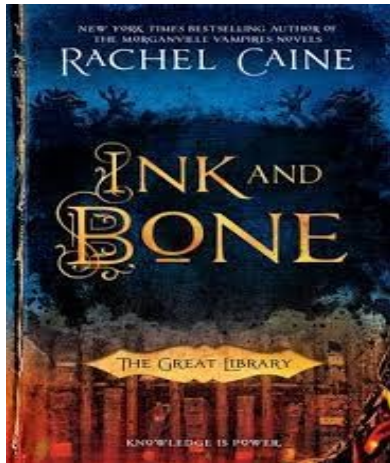


On <https://artsandculture.google.com/story/ZgVBINjnnb9HJg?hl=en> you will find a beautiful film on the House of Wisdom from Producer and Director Ahmed Salim, with voice of actor Omar Sharif, music score by Sami Yusuf and artwork by Ali Amro that explains in detail how this magnificent edifice of knowledge was built and how it worked.

A number of books have been written on the Bayt al-Hikmah and I am trying to get a larger perspective on Islamic state of Knowledge and desitories on this. They say that The House of Wisdom included a society of scientists and academics, a translation department and a library that preserved the knowledge acquired by the Abbasids over the centuries.

They also researched and studied alchemy, which was later used to create the structure of modern chemistry. Furthermore, linked to it were also astronomical observatories and other major experimental endeavors. Institutionalized by Al-Ma'mun, the academy encouraged the transcription of Greek philosophical and scientific efforts. Additionally, he imported manuscripts of important texts that were not accessible to the Islamic countries from Byzantium to the library.

The House of Wisdom was much more than a library, and a considerable amount of original scientific and philosophical work was produced by scholars and intellectuals related to it. This allowed Muslim scholars to verify astronomical information that was handed down from past scholars.



"The Burning of the Library at Alexandria in 391 AD" by Ambrose Dudley. The reproduction will be hand painted by one of our talented artist.



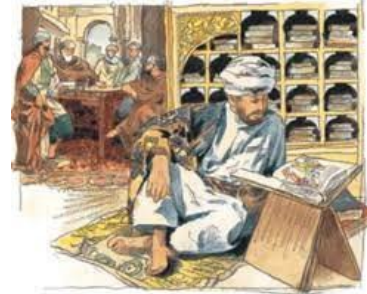
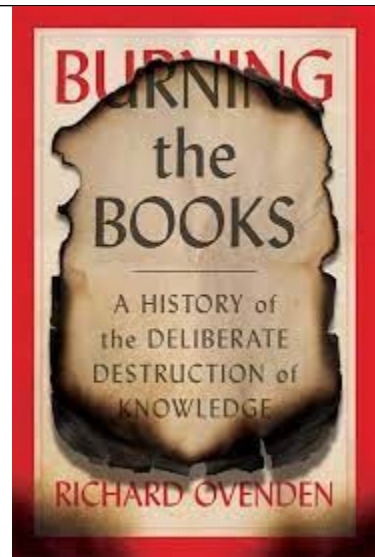
The **Great Library of Alexandria** in Alexandria, Egypt, was one of the largest and most significant libraries of the ancient world but was not the first library of its kind but a forerunner of a long tradition of libraries that existed in both Greece and in the ancient Near East. The earliest recorded archive of written materials comes from the ancient Sumerian city-state of Uruk in around 3400 BC, when writing had only just begun to develop. Scholarly curation of literary texts began in around 2500 BC. The later kingdoms and empires of the ancient Near East had long traditions of book collecting. The ancient Hittites and Assyrians had massive archives containing records written in many different languages. The most famous library of the ancient Near East was the Library of Ashurbanipal in Nineveh, founded in the seventh century BC by the Assyrian king Ashurbanipal (ruled

668–c. 627 BC). A large library also existed in Babylon during the reign of Nebuchadnezzar II (c. 605–c. 562 BC). In Greece, the Athenian tyrant Peisistratos was said to have founded the first major public library in the sixth century BC. It was out of this mixed heritage of both Greek and Near Eastern book collections that the idea for the Library of Alexandria was born. It claims the Library of Alexandria was founded during the reign of Ptolemy I Soter (c. 323–c. 283 BC) and that it was initially organized by Demetrius of Phalerum



The The library of Alexandria met its fate in 48 BC and thr Alexandria Lighthouse also met its destruction in 796 and 951, during two earthquakes, the Lighthouse of Alexandria was partially damaged but was still standing but following three more earthquakes in 1303 and 1323, the Lighthouse finally collapsed. The most destructive earthquake is known to be the one in 1303 originating from the Greek Island of Crete.

More than simply repositories for knowledge, libraries and archives inspire and inform citizens. In preserving notions of statehood recorded in such historical documents as the Declaration of Independence, libraries support the state itself. By preserving records of citizenship and records of the rights of citizens as enshrined in legal documents such as the Magna Carta and the decisions of the US Supreme Court, they support the rule of law.



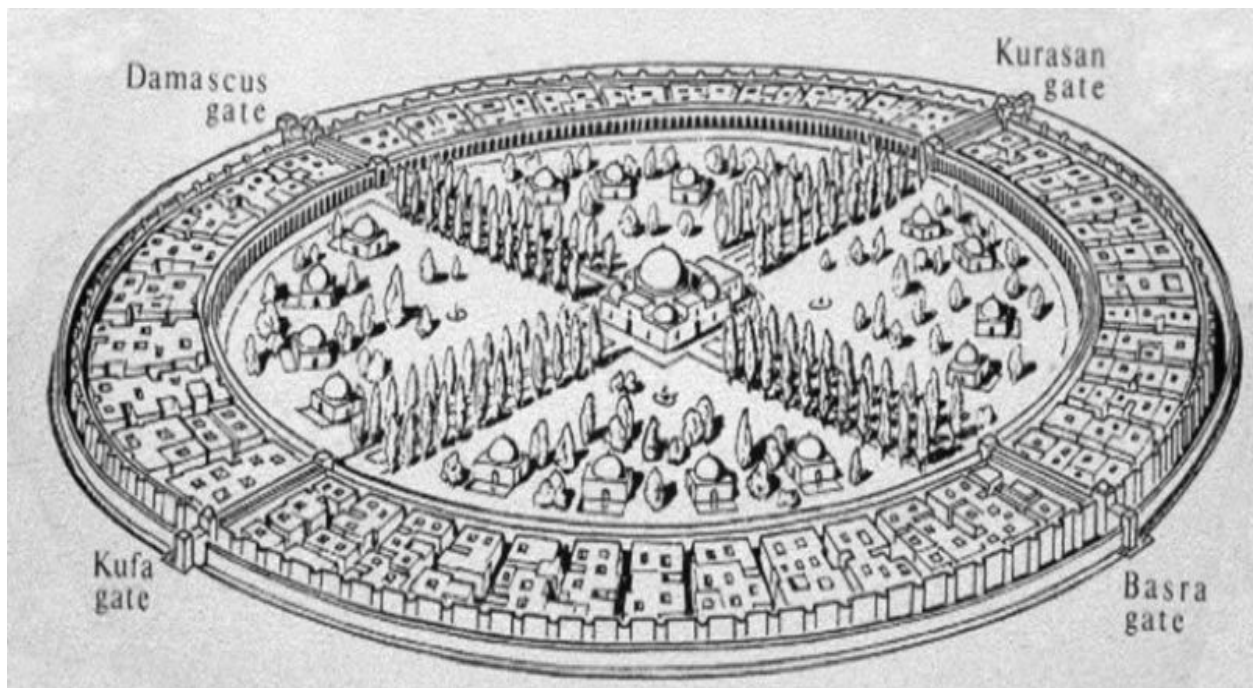
In his Book- BURNING THE BOOKS, The director of the famed Bodleian Libraries at Oxford narrates the global history of the willful destruction and surprising survival of recorded knowledge over the past three millennia. Libraries and archives have been attacked since ancient times but have been especially threatened in the modern era. Today the knowledge they safeguard faces purposeful destruction and willful neglect; deprived of funding, libraries are fighting for their very existence. Burning the Books recounts the history that brought us to this point. Richard Ovenden describes the deliberate destruction of knowledge held in libraries and archives from ancient Alexandria to contemporary Sarajevo, from smashed Assyrian tablets in Iraq to the destroyed immigration documents of the UK Windrush generation. He examines both the motivations for these acts -political, religious, and cultural and the broader themes that shape this history. He also looks at attempts to prevent and mitigate attacks on knowledge, exploring the efforts of librarians and archivists to preserve information, often risking their own lives in the process. In Burning the Books, the author takes a polemical stance on the social and political importance of the conservation and protection of knowledge, challenging governments in particular, but also society as a whole, to improve public policy and funding for these essential institutions.

The House of Wisdom existed as a part of the major Translation Movement taking place during the Abbasid Era, translating works from Greek and Syriac to Arabic, but it is unlikely that the House of Wisdom existed as the sole center of such work, as major translation efforts arose in Cairo and Damascus even earlier than the proposed establishment of the House of Wisdom and its rise also advanced searches in mathematics, organized studies, astronomy, philosophy, and medicine highlighting the great pursuit for Arab science.

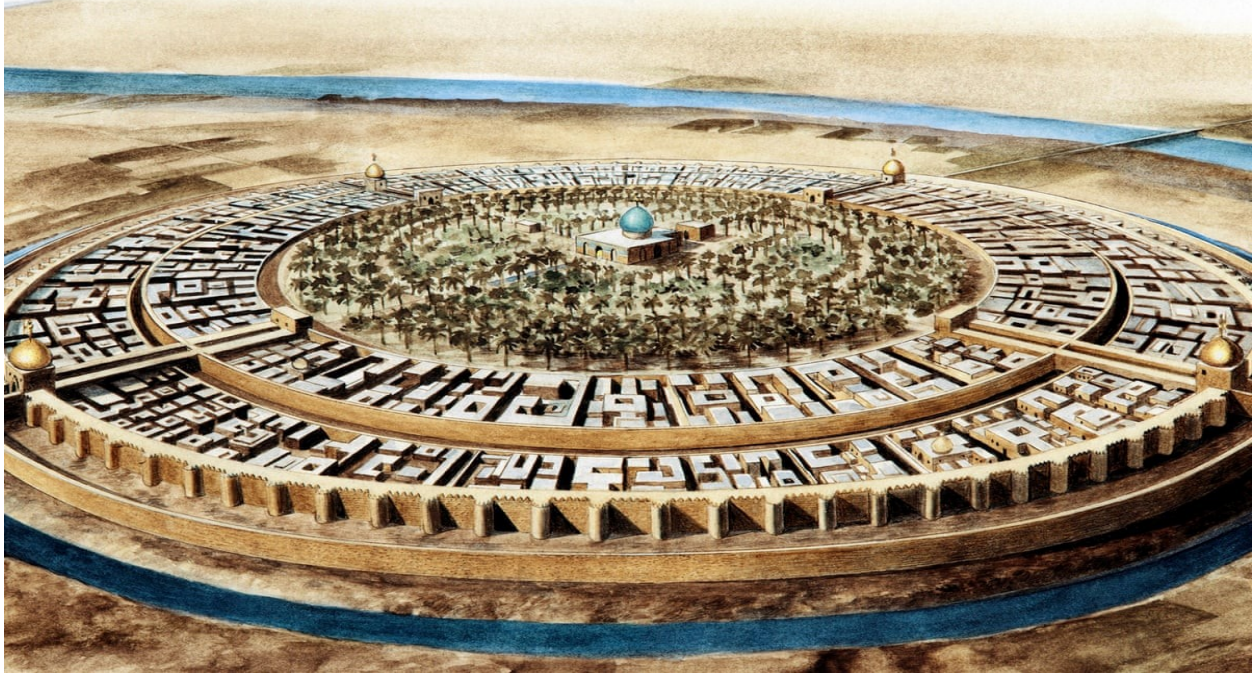
The House of Wisdom was made possible by the consistent flow of Arab, Persian, and other scholars of the Islamic world to Baghdad, owing to

the city's position as capital of the Abbasid Caliphate. This is evidenced by the large number of scholars known to have studied in Baghdad between the 8th and 13th centuries, such as Al-Jahiz, Al-Kindi, and Al-Ghazali among others, all of whom would have contributed to a vibrant academic community in Baghdad, producing a great number of notable works, regardless of the existence of a formal academy.

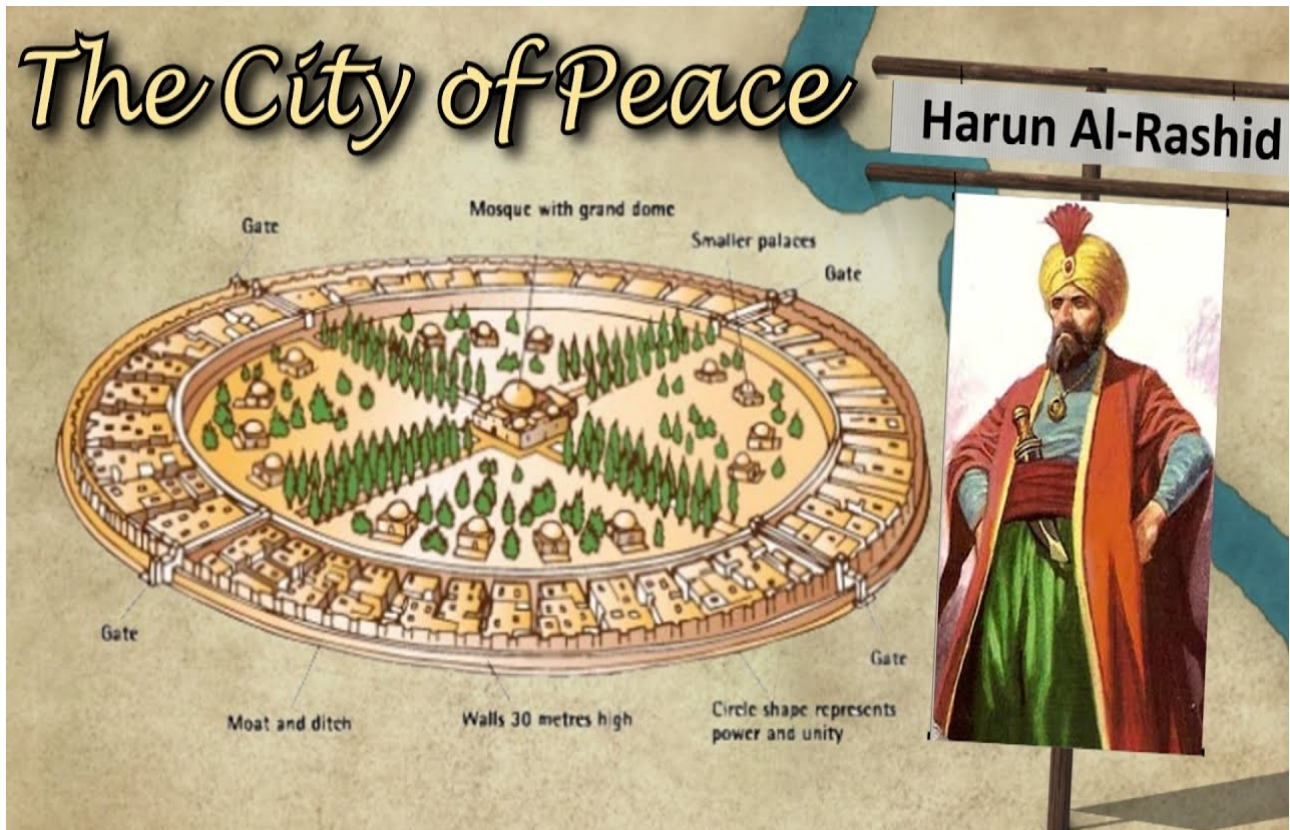
While The Alexandrian Library flourished in Egypt, the Abbasid dynasty in 750, replaced the Umayyad as the ruling dynasty of the Islamic Empire, and, in 762, the caliph al-Mansur (r. 754-775) built Baghdad and made it his capital instead of Damascus. Baghdad's location and cosmopolitan population made the perfect location for a stable commercial and intellectual center.^[15] The Abbasid dynasty had a strong Persian bent, and adopted many practices from the Sassanian Empire—among those, that of translating foreign works, except that now texts were translated into Arabic. For this purpose, al-Mansur founded a palace library modeled after the Sassanian Imperial Library, and provided economic and political support to the intellectuals working there. He also invited delegations of scholars from India and other places to share their knowledge of mathematics and astronomy with the new Abbasid court.



The **Round City of Baghdad** is the original core of Baghdad, built by the Abbasid Caliph al-Mansur in 762-766 CE as the official residence of the Abbasid court. Its official name in Abbasid times was **City of Peace** known in Arabic as *Madīnat as-Salām*. The famous library known as the House of Wisdom was located within its grounds. One can see it in the centre.



The round city of Baghdad in the 10th century, the peak of the Abbasid Caliphate.
Illustration: Jean Soutif/Science Photo Library





Baghdad 1,200 years ago was the thriving capital of the Muslim civilization. For about 500 years the city boasted the cream of intellectuals and culture. For more than two centuries, it was home to the House of Wisdom, an academy of knowledge that attracted brains from far and wide. From mathematics and astronomy to zoology, the academy was a major centre of research, thought and debate in Muslim Civilization (Sketch: 1001 Inventions).



The House of Wisdom (Bayt Al-Hikmah) was seen as one of the leading libraries in Islamic history that appeared during the Golden age of Islam. It was initiated by the Abbasid dynasty. The research historically analyses the civilizational role of Bayt Al-Hikmah that has remarkably adapted the intellectual richness to serve scholars, scientists and worldwide thinkers. The study highlights the development that marked the house of wisdom in the time of the Abbasids. The main objective of this paper is to explore the impact of the house of wisdom on the Islamic libraries, moreover it studies the organizational structure of Bayt al-Hikmah along with library divisions and services that it provided for scholars and readers. The paper shall also deal with funding sources. The study found out that, the house of wisdom has had a very organized management system especially in collecting and book cataloguing, the library had a great interest in debating and scientific circles in various topics and subjects. In addition, some new competing libraries have been influenced by the system of the house of wisdom in Egypt and Andalusia. It preserved the knowledge and heritage of the ancient civilizations and it contributed with a remarkable and an unprecedented discoveries that the western civilization have utilized to thrive. The paper shall follow a historical method which comprises some guidelines by which the authors utilize primary sources to conduct a historical account.

Introduction

The life of Muslims throughout history was correlated with the establishment of libraries that is when libraries flourish the life of scholars and scientists witness a remarkable progress (Ibn Al-Nafis, Ibn Al-Haytham, Ibn Sina, etc.) thus libraries are not just a tool of activity but rather they represent a depot of intelligence and mental inheritance for all humankind, a researcher who does not grasp the history of libraries and the legacies left by our ancestors would never fully be able to benefit from them. Unlike what some people may believe about the ancient libraries being unable to match the contemporary bookstores, libraries were the meeting place for men of literature, science, cultures, religions, etc.

The history of libraries is a history of human thought for libraries have been the stronghold of thoughts preserving them and passing them from generation to generation. We can say that among the first centers of human civilization intellect was the library of the Mesopotamian peninsula a saying that has been proved correct by different Cuneiform script writings. Which means that libraries are not founded only in our modern time, but excavations of archaeologists have backed the idea that libraries as ancient as writing for it was a very crucial invention in human history and a factor in ancient civilizations' development.

After the spread of Islamic faith, people were very attentive to gain knowledge and to participate in the life of thoughts, as a result libraries had

emerged to reflect the loftiness of the intellectual life during the second, third until the seventh century AH (after hijrah) when libraries started to vanish. Libraries represented new reality for Muslims and new passion towards the human knowledge and education.

The Abbasids attained their most sparkling period of intellectual and political life soon after the caliphate was establishment. The Caliphate reached its prime during the time reigns of Harun al-Rashid (149-193 AH) and his son al-Ma'mun (170-217 AH). The Abbasid dynasty acquired a halo in popular imagination becoming the most celebrated in the history of Islam due to the unparalleled intellectual awakening that culminated the al-Ma'mun's patronage. The house of wisdom was one of the leading libraries that distinguished the Abbasid times, it opened its doors for researchers, scholars and leaders. Bayt al-Hikmah was the preferable destination for intellectuals because it offered everything they needed including hall for reading, classrooms, divisions of binding, translating, authoring, map making, etc.

Objectives and contributions of the present research

There have been many studies on history of Islamic libraries (Houses of Wisdom) that evolved thanks to Baghdad's house of wisdom. However there was no research that could show the impact of the House of Wisdom (Bayt al-Hikmah) in Baghdad on formation of other new Islamic libraries. The current study analyses the organizational structure of Bayt al-Hikmah al-Baghdad and its divisions and services that it provided for scholars and readers. The paper shall also deal with the funding sources and governmental endowments that were commonly known at the time of the Abbasids. It also shows the intellectual as well as managerial impacts that Baghdad's House of Wisdom (Bayt al-Hikmah) had on the spread of new Islamic libraries within the Muslim peninsula.

The current conducted research has a very original contribution since previous studies on the House of wisdom have only dealt with historical backgrounds of some libraries. The paper contributes in highlighting the extent of creativity for authors that had flourished due to the House of wisdom in which book authoring took a very progressive trend. It also adds new historical and factual contribution to studies on the administrative and managerial aspects and the way they function in the House of Wisdom (Bayt al-Hikmah) that was later assimilated by several libraries in the Muslim world.

Research Methodology

The current paper shall use a qualitative research based on a historical approach through which the authors analyze and criticize development of the House of Wisdom (Bayt al-Hikmah) and its influence on similar libraries based on credible and primary sources that marked one of the bright ages

of Islamic history. The historical approach has determined the research framework of gathering relevant information about the House of Wisdom and its administrative and intellectual impact on emergence of new public and private libraries.

Historical Origins

There has been different opinions on the identity of the founder of the Abbasids' House of Wisdom. Some records say that the founder of Bayt al-Hikmah was Abu Ja'far al-Mansur (95-135 AH) who collected books on medicines, astronomy, engineering and literatures that have been translated in his reign, moreover some other publications on Hadith (prophetic tradition), history, Qura'nic sciences, al-Mansur has gathered all collections of books in a big room that was the nucleus of the house of wisdom. He was the first caliph who motivated Muslims to study sciences and develop them, he also advised them to translate books from Persian, Greek, and Indian languages. Among the books that al-Mansur initiated their translations were the book of Al-Sind Hind a book on mathematics and a huge collection of Aristotle, Euclid and of Claudius Ptolemy writings. These collections along with the authored publications on Prophetic tradition (Hadith), literature, and history were gathered in one of palace's big closet that later on was developed becoming the pillar of the house of wisdom (al-Qafti, 1903), we agree upon the above mentioned opinion that Bayt al-Hikmah was founded in the time of the Caliph al-Mansur.

Scholars of a second opinion saw that the house of wisdom was founded in the time of Harun al-Rashid (149-193 AH) as a result of the civilizational and intellectual progress that characterized his caliphate especially during the era of translation movement whose aim was to enrich the Muslim thought with different knowledge and sciences led by a number of Arabs, Persians and Syriac scholars and scientists . When al-Rashid army opened Ankara he personally took hold of the expedition to preserve the libraries there and to transport every valuable collection of books to the centre of the Abbasid Caliphate Baghdad specifically to the house of wisdom. Ibn al-Nadim supported this opinion when he mentioned in his book *Al-Fihrist* "Abu Sahl al-Fadl Ibn Nubakht was present around the closet (book storing place) of Al-Rashid. Also the saying of Yaqut al-Hamawi who could confirm that the house of wisdom existed in the time of Al-Rashid "Al-Warraq used to copy and reproduce in Bayt al-Hikmah during the times of Al-Rashid and Al-Ma'mun", this would argue for the presence of the house of wisdom at the reign of Al-Rashid.

The third opinion argue that the Abbasids' house of wisdom was founded in the time of Al-Ma'mun the caliph (170-217 AH). De Lacy O'Leary (1872-1957 AD) who is a British orientalist has supported the idea that Bayt al-Hikmah was constructed by Al-Ma'mun when he says "the caliph Al-Ma'mun has founded a school he named Bayt al-Hikmah, and he made it an institution that embraces the translation of the Greek books," the same

opinion appears in Max Meyerhof and William James Durant writings. It is possible to say that the house of wisdom existed long before Al-Ma'mun but it sparkled during his reign for he was a man of literature, a scientist and a lover of scholars to whom he had given major interest and support for their research, debates and authoring books.

The Naming of House of Wisdom (Bayt al-Hikmah)

When the Caliphs have had a huge collection of books and a considerable number of translations, maps, manuscripts, etc. they had to construct an appropriate place for these collections, historians have a consent that the caliphs' most desirable location for the library was the palace itself.

Bayt al-Hikmah of the Abbasids was given different names, according to some sources it was called closet of wisdom a name that was given by historians like Ibn al-Nadim who often used the Bayt al-Hikmah to refer to the same store, another scholars like Ibn Sa'id al-Andalusi and al-Qalaqshandi utilized the term closet of wisdom to refer to the house of wisdom. Haji Khalifa on the other hand gives a different name known as Dar al-Hikmah. The most interesting thing about the naming of house of wisdom is that all labels signify the same meaning that Bayt al-Hikmah was the place of all knowledge and wisdom to be found.

The Location and its Architectural Design

There has not been enough information about the place of house of wisdom, references have spoken about Bayt al-Hikmah fairly but they have not said much about its location. According to the norms the closet of books should be part of the palace just like the Cordoba Place and the palace of the Fatimid caliph Al-'Aziz Billah (344-386 AH), and palaces of the kings of India and Persia.

It is believed that the house of wisdom was part of the palace during the time of Al-Rashid (149-193 AH), it was a separate house (Dar) within the palace of caliphs, and some historians said that it was an attached large room from the outside. However when the number of translated and authored books has increased in the reign of Al-Ma'mun (170-218 AD) the house became a large building with a big number of halls and room for translators, authors, scientists, and readers. As a result the library was relocated to Al Rusafa that was the half of Baghdad on the eastern side of the river Tigris and a new Astronomical Observatory has been appended to the new relocated library.

As for the house of wisdom's architecture. Mahmud Ahmad Derwich has found a suitable architectural planning for Bayt al-Hikmah through his studies on the golden castle constructed by Al-Mansur. The house of wisdom composed of a yard surrounded by halls of two floors from its four sides, it was headed by a penthouse on a row of pillars. In the middle of

every side among the four sides of the yard there were halls topped by semi-cylindrical dome of 25 cubit. The main hall leads to a square shape room above it there was a big dome with 80 cubit high, the main hall also has a statue of knight holding a spear that spins with the spear. The ground floor contained a number of divisions for book closets and sections for translating, authoring, copying, binding, reading as well as studying in all subjects of knowledge, sciences and literature, as for the upper floor it was devoted to residents from authors, translators, students and employees.

Organizational Chart of the House of Wisdom

Bayt al-Hikmah had its own system but sources have not stated a precise description that bind the system that the house of wisdom used to function. Information given helps us infer that the library of Bayt al-Hikmah was an institution like other institutions of that time, for there have existed terms given to specific people such as Sahib bayt al-hikmah. The term sahib refers to the highest ranking officials of the state, for instance, Sahib al-Bimartsan that stands for the director of the hospital, Sahib al-Arsad or director of astronomical observatories, sahib al-Diwan or director of the ministry cabinet...etc. (Al-'ish: 1991). The responsible for the house of wisdom was called al-Khazin who administrated its affairs, the importance of the job requires one of the best scholars or intellectuals who had mastered various sciences and showed a distinguished cleverness.

After the library was formed and loaded with a huge number of translated and authored books, manuscripts, maps and other books from the Greek, Persian and Indian civilizations, as a result the Abbasids build a big premise with many rooms and halls that contained all the assembled literature that was divided into sections and groups in which every section or group was dedicated to a specific science collection. Each collection was stored in a partitioned shelf. (Ma'ruf, 1983). Books inside the house of wisdom were indexed accordingly the same way as in the modern libraries when there existed a clear cataloguing method of book titles and manuscripts. Some scholars have made their own index for their writings for instance, Al-Bayruni has listed and indexed his own books and books of Mohammad Ibn Zakariyah Al-Razi. Bayt al-Hikmah has had a variety of sections that included: depositing books, book lending, Copying and binding, maps and manuscripts, and finally the section of translating and book authoring. We shall explore now the library sections in details within the coming pages:

1. *The depositing of books:* This process during the times of Bayt al-Hikmah was labelled al-Takhlid, it was accomplished in different ways. Authored books were of great value for the library and for the author who had a great honour if his books are deposited in the house of wisdom, translated books were also of no lesser value and they composed the library's collection, finally, sometimes al-Takhlid is through purchasing books, for example the caliph al-Ma'mun had

assigned a group to purchase books from Roman and Greek libraries and add them to his closet of books. Dr Hasan Ahmad Mahmud has commented on the caliphs efforts in purchase process saying that "the Abbasid state held deals to purchase books and they paid high prices for them especially in the time of al-Ma'mun who devoted himself to knowledge and fortune to reach out the intellectual treasury in foreign libraries of Constantinople and Cyprus."

2. *Book lending*: As it has been stated earlier that the house contained a considerable number of rooms and halls. One of the halls was devoted for readers that had some servant who provide help, comfort and other sort of services for those who frequently came to the library. There had been also an external but conditional lending of, in which books were lent for people who value them therefore they have to make a pledge and pay a refundable cost for the lent book in case of damage or loss in order to preserve all book collections within the library.
3. *Copying and binding*: this section was related to the translation movement, once the translator finishes the assigned job, the product will be transferred to a writer who were having a distinguished hand writing style. The caliph al-Ma'mun himself was the one who nominated the writers and the writing style. When the written product is ready it would be devolved to other people for binding and decorating. The final copy would be distributed also in other libraries outside of Baghdad to the Tunisian House of Wisdom, and Cairo's Dar al-Hikmah.
4. *Maps and manuscripts*: the library has preserved a big number of geographical maps manuscripts, and astronomical photographs. Bayt al-Hikmah had kept many resources for geographers and astronomers who could benefit from these collections, for instance al-Mas'udi had viewed a photograph named al-Sura al-Ma'muniyyah that has been produced by a number of scholars in the time of al-Ma'mun, it demonstrates the whole world with its stars, planets, land, oceans and urban places of cities and nations. Furthermore there existed another manuscript that pictures the earth with its seas, mountains, valleys...etc.
5. *Translation and authoring*: the Abbasid caliphs have had a great concern in translating and transmitting the legacy of the ancient nations to the Arabic language in order to avail from it and to contribute in the new procedure of the ancient knowledge innovation. This had been one of the main leading tasks and activities for the house of wisdom. Translation movement have focused on some main languages that include: Greek, Indian, Syriac, and Persian languages. This section was subdivided into different assembly based on the subjects of translation and each was assigned to one of the eminent scholars at that time, for

instance, the assembly of mathematics and engineering was assigned to Abu Ja'far Ibn Musa Ibn Shakir (183-258 AH) and his brothers, assembly of stars' movement and philosophy were assigned to Ya'qub al-Kindi (184-259 AH) and to Ibn Farkhan al-Tabari (145-200 AH), and the body of Medicine that was designated to Ibn Ishaq al-Harani.

The library was not only a place of translating the ancient heritage but it was also the institution when scholars and scientists authored their own books on literature, history, philosophy, linguistics, medicines...etc. Harun al-Rashid (149-193 AH) had appointed Ibn Qarib al-Asma'l (121-216 AH) to author a book on history, the latter had finished his first assigned task in the house of wisdom itself. Abu Zakariyya al-Farra' (144-206 AH) had also authored one of the earliest publications on Arabic Grammar. In addition to that, Bayt al-Hikmah represented the educational institution for the Abbasids who spent their fortune to appoint scholars and lecturers to teach philosophy, astronomy, history, geography, mathematics, medical sciences, and music...etc. the educational environment in the library had given the opportunity to student to pursue their research on higher education thus, the House of wisdom had become the first Islamic university in history of Islam.

The Funding Resources

Historical sources have pointed out little knowledge on the extent of financial finding for the house of wisdom, but they almost all agreed that there used to be a limitless support on the funding issue when a large sums of money and gold were spent to fund the library. Consequently it helps us infer that there had been a special budget for the house of wisdom to secure the wages of all its employees including: translators, authors, binders, lecturers, debaters, servants...etc. the budget also compromised other facilities such as habitation, food, book, pens and papers' purchase and others.

Al-Ma'mun the caliph had allocated a steady resources or endowments (Awqaf) to be spent on the library, in so doing the caliph did not want to expose this institution to any financial shakings or crisis for he knew the harm it could occur to education and to scientific progress in such hard times therefore he secured a lasting funding from caliphs and ministers.

As for the disbursed money on the house of wisdom in the time of al-Ma'mun it estimated nearly two hundred thousand Dinars, some sources have mentioned that the same caliph had offered to Hunayn ibn Ishaq (194-260 AH) - a famous translator- the weight of what he translated of books in gold as a wage for the latter's contribution in enriching the house of wisdom with the ancient knowledge translated into Arabic. Ibn al-Nadim has also stated in his book *Al-Firist* that some translators like Ibn al-A'sam and Thabit Ibn Qurra (221-288 AH) have a monthly allowance that exceeded five hundred Dinars.

Impact of House of Wisdom on Islamic Libraries

The house of wisdom had crucial role to play in linking the Islamic world fronts in east and west and in introducing the heritage in its perfect form to all Muslims in order to preserve it from loss and deterioration. As a result, the library had gained a great fame in the Islamic world for it was the first scientific and educational library that assembled scientists, scholars and translators to study and research. The house of wisdom had become an exemplary model for other Caliphs and princes who tried to simulate and to found new libraries and houses of wisdom that can compete with the one in Baghdad, this contest had attained an intellectual and scientific advancements in every sphere in the Islamic world. Here are some libraries that came to exist because of emulating the example of house of wisdom:

1.The Aghlabids House of Wisdom: found by Amir Ibrahim Ibn Mohammad al-Aghlabi (261-289 AH) in Raqqada. Ibrahim was an admirer of knowledge and scholars for he knew the value of education and knowledge and their role in the progress of societies. He had strived to make his library reach out the fame of Baghdad library, wherefore he brought to Aghlabids library a number of precious manuscripts, books and scientific tools. The prince has two annual expeditions to Baghdad to renew his sovereignty to the Abbasid caliphate in doing so he assigned a group of scholars to borrow and purchase books and literary works from Baghdad that they cannot be found elsewhere.

2. The Andalusian House of Wisdom: it was found by the Umayyad caliph in Andalusia al-Hakam al-Mustansir (302-366 AH) who was often described as the master or scholar (A'lim) of the Umayyad due to his vast knowledge in various sciences categories, he collected the greatest number of books that nobody had collected before (Levi-Provencal: 1994). Therefore he decided to construct a huge building which he called the Dar al-Hikmah (house of wisdom) that followed the example of the Baghdad library in its artistic and organizational features. During the reign of al-Mustansir Cordoba became one of the eminent centres of human civilization characterized by a remarkable progress in sciences, arts, and architecture.

3. Cairo's House of Wisdom: the beginning of its founding is related to the time of the Fatimid al-Aziz billah (365-386 AH) who also was a lover of books and he attentively collected a great number of them saying that he would have a hold of a copy of every book whether authored or translated in the house of wisdom in Baghdad. The true founder of the Cairo's Dar Al-Hikmah was al-Hakim bi-Amr Allah (386-411 AH) who always assembled scholars from all arts and sciences and he prepared for them everything they needed in order to facilitate for them searching and authoring. He also gifted students and readers with different presents and supply them with free ink and papers.

A huge number of new libraries had emerged in the Arab peninsula and in other territories, however it was clear that all newfound libraries have been trying to compete with the Abbasids House of Wisdom in Baghdad. They tried to simulate, innovate and challenge the reputation that the House of wisdom had in the Muslim world.

The libraries that have flourished following the example of the house of wisdom's have had their doors open to scholars from all over the world. Libraries have had almost the same kind of translated books that were culled from scholarships of dozen languages. The house wisdom was a center of knowledge and education, it was a rival of the Constantinople's if it did not exceed it. It was the model for other libraries and similar institutions throughout the soils of Islamic civilization.

The example of the house of wisdom was remarkably followed and its influence appeared when other many public libraries have emerged all the way from Bokhara and Merv, in the heart of Asia, on the route to China through Basra and Damascus, Algiers and Cairo. The famous geographer Yaqut al-Hamawi who had visited Merv in the late 1220s, found more than twelve libraries there opened for public. And the same as the house of wisdom in Baghdad functioned, ten libraries were through endowments (awqaf). He interestingly expressed his admiration for about the lending policies of the libraries there, he noted that libraries in Merv were being liberal enough to lend him more than 200 volumes he could use in his room at the same time.

Libraries of The Nizamiyyah School were somewhat similar to the House of Wisdom (Bayt al-Hikmah) for the former had had many facilities to offer for students, including student's scholarships and endowment professorship. The Nizamiyyah School libraries and Cairo libraries were reported to have their own binders, administrators, librarians and even guards, they have shared almost all supported by endowments from governments, caliphs and kings.

One of the most remarkable impacts that the House of Wisdom had had on the other libraries is that they have helped scholars and authors creativity to flourish. For instance hundreds of volumes were being written in the time of the Fatimid's time. The high authoring process was one of the characteristics of the Egyptian renaissance before the coming of the Mongols and the crusaders. The influence of the House of Wisdom went beyond the Arab peninsula when it reached European soils particularly Spain. Cordoba, Seville and Toledo had a great number of libraries basically because many agents had been sent across the countries and seas to buy books and bring them to the Royal library in Cordoba in which it is believed to have contained more than 400.000 volumes, and amazingly it gave employment to over five hundred people. Ultimately Cordoba had become

one of the greatest book markets in the western world during the 10th century AD.

The House of Wisdom (Bayt al-Hikmah) had influenced not only similar public libraries, but a new form of libraries that were for personal use and for show. They were called private libraries which sometimes reached a considerable size. One writer has estimated that some private libraries were bigger and richer than public or private, libraries in Western Europe. However it was not the norm for the well-to-do people to leave their libraries open to public or to endow them for users. Employees in the House of Wisdom in Baghdad were people of higher intellectual abilities, the same was emulated in every public library across the Muslim world. They often had a staff list that reach sometimes hundreds of copyists, illuminators, binders, translators, and authors. Those whom we can consider librarians were not randomly chosen but they usually were scholars, poets, multilingual and writers who on the other side were well paid by caliphs, rulers or nobles.

Many of the Islamic libraries included also not halls for reading and book storing, but they also they contained rooms for meetings and other rooms for discussions and debating that were help sometimes between different libraries and different scholars which implies the competition among libraries for scientific achievements, reputation and glory of the library itself. The Muslim libraries have played a major role in translating and transmitting works of Greek, Persian, Indian and Assyrian physicians and philosophers, works that later became the basic textbooks in European schools of Bologna, Naples and Paris. It is likely that without the Muslim libraries, modern Europe's scientific and intellectual progress would have been remarkably inhibited.

The End of the House of Wisdom Library

After the invasion of Baghdad by the Mongols in (656 AH-1258 AD) they wrecked the library's private and public closets of books, manuscripts, maps, observatories...etc. they burned majority of the collections whilst others were thrown into the Tigris river, some say that the Mongols have built their barns using books instead of clay.

Hulagu has ruined almost all books that have been translated or authored by distinguished scholars and scientists, the works that were used to spread culture and knowledge and wisdom among the Muslims and non-Muslims were gone into dust. As a result the world witnessed the fall of one the preserving libraries of human intellect and human civilization of that time which has had a calamitous impact on the Islamic civilizational heritage.

The legacy of the house of wisdom library was wasted and the west did not find except Arabic sources to obtain the heritage of ancient human civilizations. The invasion of the Mongols and the destruction of the library

marked the fall of Baghdad and ultimately the collapse of the Abbasid Caliphate that had left the Muslim world in crisis in the years to come.

Conclusion

The research paper showed that the Abbasid Dynasty had much to offer for the human civilization of intellectual and scientific progress. Caliphs were giving the translation movement, transmissions, authoring and intellectual achievements a very high level of respect and support that represented key factors to getting hold of the Hellenistic, Indian, and Persian knowledge and wisdom.

The House of Wisdom has played a distinguished role in the history of the Middle Ages for it was a bridge that transmitted the ancient civilizations including the Islamic one to the west, as it was the departure of modern sciences. Historians have a major consent that thanks to the house of wisdom and other similar schools and libraries, the continuity of human civilization was preserved after the fall of Greek and Roman civilizations.

The study has demonstrated that the house of wisdom was the leading library or in other words a leading Islamic university that the Abbasid age required. The paper has explored the impact of the house of wisdom on the Islamic libraries that came to existence as a simulating process of the Baghdad's library, moreover it studied the organizational structure of Bayt al-Hikmah along with library divisions, sections and services that it provided for scholars and readers.

The research has dealt with funding sources and the budget that the state caliphs dedicated to the library. The study found out that, the house of wisdom has had a very organized administration and affair management system. In addition, new competing libraries have been influenced by the system of the house of wisdom in Baghdad which resulted in the emergence of newfound libraries in Egypt, Maghreb and Andalusia. The Abbasid library had preserved the knowledge and heritage of the ancient civilizations and it passed them to the west with a remarkable contributions, the latter has utilized some of the Abbasid period unprecedented discoveries to flourish and modernize.

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INTRODUCTION

The Golden Age of Islam



Painting of the Ali Baba story in based on the one from *The Book of One Thousand and One Nights* by Maxfield Parrish. Now a You Tube Video

Introduction: Overview of the Golden Age of Islamic Civilization

In general, a civilization is the cumulative, lettered, urban tradition that is carried by literary high culture by a single language or a group of culturally related languages, and has sufficient continuity to allow for its specific designation as a civilization different from other human civilizations. When we speak about “Islamic civilization,” in particular, we mean the literary tradition that was produced in an Islamic context. This context can have several meanings: that the people who contributed to this tradition were Muslims; that they lived in the lands where the state, high culture, and symbols were Islamic, regardless of the religions they professed; that Islamic languages were used as a means of expressing this tradition, especially Arabic, Persian, and later Turkish; and that they belonged to a discipline whose origins are associated with the study of Islam.

The contribution of Islamic civilization in the Golden Age of Islam resulted from the broad choices that the early Muslim community made. As swift conquerors of practically all of the Near East, the early Muslims refused to act either as victors who impose their religion and world-view on their subjects, or as inexperienced civilization-builders who “melt” into the sophisticated ancient civilizations of the indigenous populations. Instead, they permitted the indigenous populations—primarily, but not only, Jews and Christians—to keep their religions and traditions, placing them under the Qur’anic category of “people of scripture” (*ahl al-kitab*) who deserve protection (*dhimmis*), while they identified their own religion, Islam, and its language, Arabic, as their only non-negotiable sphere of identity; all other areas which did not conflict with this sphere they considered a legitimate source of inquiry and inspiration. This almost limitless openness, accompanied with great self-confidence, success, and prosperity of the carriers of the new faith, was the foundation on which Islamic civilization was based, and flourished in the Golden Age of Islam, with people of all kinds of ethnicities and religions participating in the construction of that civilization. The gradual acceleration of consensual conversion into Islam in the first centuries of Islam helped in homogenizing while enriching the base of that civilization, as did the quick dominance of Arabic language as a language of culture, to be joined by Persian from the tenth century onward. The foundation of cities like Basra and Kufa, Baghdad and Cairo, Cordoba and Fez, and the revivification of ancient ones, like Jerusalem and Damascus, created urban contexts for the flourishing of that civilization and allowed the construction of monuments expressive of their identity in them. The extended periods of peace allowed for the flow of trade and ideas across continents. The ideas of the past were also incorporated in this hub of cultural production, translating them into Arabic, and that past was extended to that of late antiquity—Greece—and of ancient Persia. In this

context, even sectarian divisions within the Muslim community could be re-channelled in positive directions, with each sect enriching the fabric of religious culture, as could the debates between the various religious and ethnic groups.

Framing of the issues: Muslim Theology and “Book-Culture” in Early Islamic Society

The Muslim community started dividing into sects only thirty years after the Prophet Muhammad’s death, disagreeing among themselves on who should lead the Muslim community after his demise. Thus were born the religio-political sects of the Kharijites and the Shi’ites, who at first staged rebellions but later mostly replaced militancy with writing statements and books about their respective beliefs and refutations of their opponents’ beliefs. They were joined in the book-writing activities by other groups who studied the theological aspects of Islam and formed “schools,” the most influential of which were the Mu’tazila and the Ash’aris. Members of these schools debated their positions with their opponents, but mostly wrote books on their positions on such issues as the nature of God’s attributes, pre-destination versus free will, whether deeds are necessary for faith, and the fate of children in the hereafter. In their writings, those theologians used Greek logic in formulating their arguments, and several of them engaged in debates with non-Muslim groups within the Muslim community, particularly Christians and Jews, and also wrote books either defending Islam against the attacks of the non-Muslims or refuting the dogmas of these non-Muslims. Individuals, then groups, arose in early Islamic society who wrote and spoke, in sermons and books, on the importance of leading an ascetic life in this passing world, in order to earn an ever-lasting life in heaven. Sufis, or mystics, emerged from these groups, lifting the role of the spirit over the body, the esoteric over the exoteric, and the personal relationship with God over the formal one. They, too, wrote books describing their positions and beliefs and refuting the writings of their opponents, thus contributing to the book-production culture in Islamic civilization. And when those sufis became organized in differentiated orders, *tariqas*, they enriched this book-culture by further adding each *tariqa*’s devotional chants and prayers, in addition to their histories and hagiographies.

So, what is the Islamic Golden Age?

The Islamic Golden Age was a historic time of fascinating scientific, cultural, and economic thriving within the history of Islam, which dated from the 8th to 13th century (“Islamic Golden Age”). This period initially began during the reign of Caliph Harun al-Rashid (786 to 809 A.D.), and Muslims were able to establish one of the largest empires in history (“Islamic Golden Age | Islamic History”). During the time, caliphs (Islamic successors and leaders) established the hub of the Abbasid caliphate (the

third Islamic caliphate which succeeded Prophet Muhammed (phuh)) in Baghdad, Iraq ("The Golden Age Of Islam"). Within Baghdad, al-Rashid established the House of Wisdom; an intellectual center and public academy ("House Of Wisdom") which increased in use during the reign of al-Rashid's son, Al-Ma'mun. This is due to Al-Ma'mun's persistent effort in recruiting scholars of all faiths and backgrounds, greatly encouraging intellectual pursuit ("The Golden Age Of Islam").

Specifically, Al-Ma'mun initiated the Translation Movement; where scholars would translate the works and findings of the world into the Arabic language. These findings originated from Ancient Mesopotamia, Rome, China, India, Persia, Egypt, Greece and Byzantine civilizations, making it to Baghdad through the sponsorship of Al-Ma'mun. Simultaneously, other Muslim dynasties, such as the Umayyads of Al-Andalus and the Fatimids of Egypt, were rivalling Baghdad with their own major intellectual centers, such as Cairo and Cordoba. Those translations were kept in the House of Wisdom, including thousands of scholarly books of discoveries, inventions, philosophies, etc. That being said, the Islamic empire was named the first civilization, bringing people as diverse as the Chinese, the Indians, Europeans, Africans, and people of the Middle East and North Africa together for the main purpose of academic evolvement ("Islamic Golden Age | Islamic History").

The **Islamic Golden Age** *al-'asr al-dhahabi lil-islam*: During this time much of the historically Islamic world was ruled by various caliphates and science, economic development, and cultural works flourished. This period is traditionally understood to have begun during the reign of the Abbasid caliph Harun al-Rashid (786-809) with the inauguration of the House of Wisdom in Baghdad, where scholars from various parts of the world with different cultural backgrounds were mandated to gather and translate all of the world's classical knowledge into the Arabic language.

The significant centers of learning at that time were Baghdad, Damascus, Cairo, and later Cordoba, Spain. Scholarly institutions and schools developed in these cities and were staffed with scholars of the highest caliber who were dedicated in gathering information and developing new schools of thought. Ancient dogma was avidly and voraciously read, digested, tested, and questioned. There were also academic hospitals, libraries, and observatories. The introduction of paper in the 10th century enabled Islamic scholars to easily write manuscripts, including The Book of One Thousand and One Nights. Arab scholars also saved classic works of antiquity by translating them into various languages.

During the Golden Age, the major Islamic capital cities of Baghdad, Cairo, and Córdoba became the main intellectual centers for science, philosophy, medicine, and education. The government heavily patronized scholars, and

the best scholars and notable translators, such as Hunayn ibn Ishaq, had salaries estimated to be the equivalent of those of professional athletes today.

The School of Nisibis and later the School of Edessa became centers of learning and transmission of classical wisdom. The House of Wisdom was a library, translation institute, and academy, and the Library of Alexandria and the Imperial Library of Constantinople housed new works of literature. Nestorian Christians played an important role in the formation of Arab culture, with the Jundishapur hospital and medical academy prominent in the late Sassanid, Umayyad, and early Abbasid periods. Notably, eight generations of the Nestorian Bukhtishu family served as private doctors to caliphs and sultans between the 8th and 11th centuries.

Literature And Philosophy

With the introduction of paper, information was democratized and it became possible to make a living from simply writing and selling books. The use of paper spread from China into Muslim regions in the 8th century, and then to Spain (and then the rest of Europe) in the 10th century. Paper was easier to manufacture than parchment and less likely to crack than papyrus, and could absorb ink, making it difficult to erase and ideal for keeping records. Islamic paper makers devised assembly-line methods of hand-copying manuscripts to turn out editions far larger than any available in Europe for centuries. The best known fiction from the Islamic world is *The Book of One Thousand and One Nights*, which took form in the 10th century and reached its final form by the 14th century, although the number and type of tales vary.

Christians (particularly Nestorian Christians) contributed to the Arab Islamic civilization during the Ummayyad and the Abbasid periods by translating works of Greek philosophers to Syriac and then to Arabic. During the 4th through the 7th centuries, scholarly work in the Syriac and Greek languages was either newly initiated or carried on from the Hellenistic period. Many classic works of antiquity might have been lost if Arab scholars had not translated them into Arabic and Persian and later into Turkish, Hebrew, and Latin. Islamic scholars also absorbed ideas from China and India, and in turn Arabic philosophic literature contributed to the development of modern European philosophy.

Ibn Rushd

Ibn Rushd, also known by his Latinized name Averroës (April 14, 1126–December 10, 1198), was an Al-Andalus Muslim polymath, a master of Aristotelian philosophy, Islamic philosophy, Islamic theology, Maliki law and

jurisprudence, logic, psychology, politics, Andalusian classical music theory, medicine, astronomy, geography, mathematics, physics, and celestial mechanics. Averroes was born in Córdoba, Al-Andalus, present-day Spain, and died in Marrakesh, present-day Morocco.

The 13th-century philosophical movement based on Averroes' work is called Averroism. Both Ibn Rushd and the scholar Ibn Sina played a major role in saving the works of Aristotle, whose ideas came to dominate the non-religious thought of the Christian and Muslim worlds. Ibn Rushd has been described as the "founding father of secular thought in Western Europe." He tried to reconcile Aristotle's system of thought with Islam. According to him, there is no conflict between religion and philosophy; rather they are different ways of reaching the same truth. He believed in the eternity of the universe. Ibn Rushd also held that the soul is divided into two parts, one individual and one divine; while the individual soul is not eternal, all humans at the basic level share one and the same divine soul.

Science And Mathematics

The Arabs assimilated the scientific knowledge of the civilizations they had conquered, including the ancient Greek, Roman, Persian, Chinese, Indian, Egyptian, and Phoenician civilizations. Scientists recovered the Alexandrian mathematical, geometric, and astronomical knowledge, such as that of Euclid and Claudius Ptolemy.

Persian scientist Muhammad ibn Mūsā al-Khwārizmī significantly developed algebra in his landmark text, *Kitab al-Jabr wa-l-Muqabala*, from which the term "algebra" is derived. The term "algorithm" is derived from the name of the scholar al-Khwarizmi, who was also responsible for introducing the Arabic numerals and Hindu-Arabic numeral system beyond the Indian subcontinent. In calculus, the scholar Alhazen discovered the sum formula for the fourth power, using a method readily generalizable to determine the sum for any integral power. He used this to find the volume of a paraboloid.

Medicine

Medicine was a central part of medieval Islamic culture. Responding to circumstances of time and place, Islamic physicians and scholars developed a large and complex medical literature exploring and synthesizing the theory and practice of medicine. Islamic medicine was built on tradition, chiefly the theoretical and practical knowledge developed in India, Greece, Persia, and Rome. Islamic scholars translated their writings from Syriac, Greek, and Sanskrit into Arabic and then produced new medical knowledge based on those texts. In order to make the Greek tradition more accessible,

understandable, and teachable, Islamic scholars organized the Greco-Roman medical knowledge into encyclopedias.



The eye, according to Hunain ibn Ishaq. Scholars developed large encyclopedias of medical knowledge during the Islamic Golden Age, such as this one from a manuscript dated circa 1200.

Art

Ceramics, glass, metalwork, textiles, illuminated manuscripts, and woodwork flourished during the Islamic Golden Age. Manuscript illumination became an important and greatly respected art, and portrait miniature painting flourished in Persia. Calligraphy, an essential aspect of written Arabic, developed in manuscripts and architectural decoration.

Arabesque

Typically, though not entirely, Islamic art depicts nature patterns and Arabic calligraphy, rather than figures, because many Muslims feared that the depiction of the human form is idolatry and thereby a sin against God, forbidden in the Quran. There are repeating elements in Islamic art, such as the use of geometrical floral or vegetal designs in a repetition known as the

arabesque. The arabesque in Islamic art is often used to symbolize the transcendent, indivisible, and infinite nature of God. Mistakes in repetitions may be intentionally introduced as a show of humility by artists who believe only God can produce perfection, although this theory is disputed.



Detail of arabesque decoration at the Alhambra in Spain. Arabesque in Islamic art is often used to symbolize the transcendent, indivisible, and infinite nature of God.

Calligraphy

The traditional instrument of the Arabic calligrapher is the qalam, a pen made of dried reed or bamboo. Qalam ink is often in color, and chosen such that its intensity can vary greatly, so that the greater strokes of the compositions can be very dynamic in their effect. Islamic calligraphy is applied on a wide range of decorative mediums other than paper, such as tiles, vessels, carpets, and inscriptions. Before the advent of paper, papyrus and parchment were used for writing.

Coins were another support for calligraphy. Beginning in 692, the Islamic caliphate reformed the coinage of the Near East by replacing visual depiction with words. This was especially true for dinars, or gold coins of high value, which were inscribed with quotes from the Quran. By the 10th century, the Persians, who had converted to Islam, began weaving inscriptions on elaborately patterned silks. These calligraphic-inscribed textiles were so precious that Crusaders brought them to Europe as prized

possessions. A notable example is the Suaire de Saint-Josse, used to wrap the bones of St. Josse in the abbey of St. Josse-sur-Mer near Caen in northwestern France.



Qur'an manuscript Surat al-Nisa. RIGHT **Hamdanid gold dinar. 10th-century Syria.**

Architecture and Tilework

There were many advances in architectural construction, and mosques, tombs, palaces, and forts were inspired by Persian and Byzantine architecture. Islamic mosaic art anticipated principles of quasicrystalline geometry, which would not be discovered for 500 more years. This art used symmetric polygonal shapes to create patterns that can continue indefinitely without repeating. These patterns have even helped modern scientists understand quasicrystals at the atomic levels.



Mosque Archway. Geometric patterns: an archway in the Sultan's lodge in the Ottoman Green Mosque in Bursa, Turkey (1424), its girih strapwork forming 10-point stars and pentagons.

Some historians of science refer to the period from the 8th to the 16th centuries as the Islamic golden age. While the rest of Europe was plunged in darkness and learning stagnated, scientific activity in the Muslim world during this period was phenomenal. Some scholars prefer the term “Arab science” because most of the documents were written in Arabic, which was the lingua franca of the region. However, not all the scientists were Arabs and not all were Muslims. The end of the age is variously given as 1258 with the Mongolian Sack of Baghdad, or 1492 with the completion of the Christian Reconquista of the Emirate of Granada in Al-Andalus, Iberian Peninsula.

This was a period of cultural, economic, and scientific flourishing in the history of Islam, traditionally dated from the 8th century to the 14th century. This period is traditionally understood to have begun during the reign of the Abbasid caliph Harun al-Rashid (786 to 809) with the inauguration of the House of Wisdom in Baghdad, the world's largest city by then, where Islamic scholars and polymaths from various parts of the world with different cultural backgrounds were mandated to gather and translate all of the known world's classical knowledge into Syriac and Arabic.

The period is traditionally said to have ended with the collapse of the Abbasid caliphate due to Mongol invasions and the Siege of Baghdad in 1258. A few scholars date the end of the golden age around 1350 linking with the Timurid Renaissance, while several modern historians and scholars place the end of the Islamic Golden Age as late as the end of 15th to 16th centuries meeting with the Age of the Islamic Gunpowders. (The medieval period of Islam is very similar if not the same, with one source defining it as 900–1300 CE.

The **Abbasid** -*Al-Khilāfah al-‘Abbāsiyyah* was the third caliphate to succeed the Islamic prophet Muhammad. It was founded by a dynasty descended from the prophet's uncle, Abbas ibn Abdul-Muttalib (566–653 CE), from whom the dynasty takes its name. They ruled as caliphs for most of the caliphate from their capital in Baghdad in modern-day Iraq, after having overthrown the Umayyad Caliphate in the Abbasid Revolution of 750 CE (132 AH). The Abbasid Caliphate first centered its government in Kufa, modern-day Iraq, but in 762 the caliph Al-Mansur founded the city of Baghdad, near the ancient Babylonian capital city of Babylon. Baghdad became the center of science, culture and invention in what became known as the Golden Age of Islam. This, in addition to housing several key academic institutions, including the House of Wisdom, as well as a multiethnic and multi-religious environment, garnered it a worldwide reputation as the "Center of Learning".

The Abbasid period was marked by dependence on Persian bureaucrats (such as the Barmakid family) for governing the territories as well as an increasing inclusion of non-Arab Muslims in the *ummah* (Muslim community). Persian customs were broadly adopted by the ruling elite, and

they began patronage of artists and scholars.^[7] Despite this initial cooperation, the Abbasids of the late 8th century had alienated both non-Arab *mawali* (clients) and Persian bureaucrats. They were forced to cede authority over al-Andalus (current Spain and Portugal) to the Umayyads in 756, Morocco to the Idrisids in 788, Ifriqiya and Sicily to the Aghlabids in 800, Khorasan and Transoxiana to the Samanids and Persia to the Saffarids in the 870s, and Egypt to the Isma'ili-Shia caliphate of the Fatimids in 969.

The political power of the caliphs was limited with the rise of the Iranian Buyids and the Seljuq Turks, who captured Baghdad in 945 and 1055, respectively. Although Abbasid leadership over the vast Islamic empire was gradually reduced to a ceremonial religious function in much of the Caliphate, the dynasty retained control of its Mesopotamian domain during the rule of Caliph Al-Muqtafi and extended into Iran during the reign of Caliph Al-Nasir. The Abbasids age of cultural revival and fruition ended in 1258 with the sack of Baghdad by the Mongols under Hulagu Khan and the execution of Al-Musta'sim. The Abbasid line of rulers, and Muslim culture in general, re-centred themselves in the Mamluk capital of Cairo in 1261. Though lacking in political power (with the brief exception of Caliph Al-Musta'in of Cairo), the dynasty continued to claim religious authority until a few years after the Ottoman conquest of Egypt in 1517, with the last Abbasid caliph being Al-Mutawakkil III.

Abbasid Revolution (750-751)

The Abbasid caliphs were Arabs descended from Abbas ibn Abd al-Muttalib, one of the youngest uncles of Muhammad and of the same Banu Hashim clan. The Abbasids claimed to be the true successors of Muhammad in replacing the Umayyad descendants of Banu Umayya by virtue of their closer bloodline to Muhammad.

The Abbasids also distinguished themselves from the Umayyads by attacking their moral character and administration in general. According to Ira Lapidus, "The Abbasid revolt was supported largely by Arabs, mainly the aggrieved settlers of Merv with the addition of the Yemeni faction and their Mawali". The Abbasids also appealed to non-Arab Muslims, known as *mawali*, who remained outside the kinship-based society of the Arabs and were perceived as a lower class within the Umayyad empire. Muhammad ibn 'Ali, a great-grandson of Abbas, began to campaign in Persia for the return of power to the family of Muhammad, the Hashemites, during the reign of Umar II.

During the reign of Marwan II, this opposition culminated in the rebellion of Ibrahim al-Imam [ca], the fourth in descent from Abbas. Supported by the province of Khorasan (Eastern Persia), even though the governor opposed them, and the Shia Arabs, he achieved considerable success, but was captured in the year 747 and died, possibly assassinated, in prison.

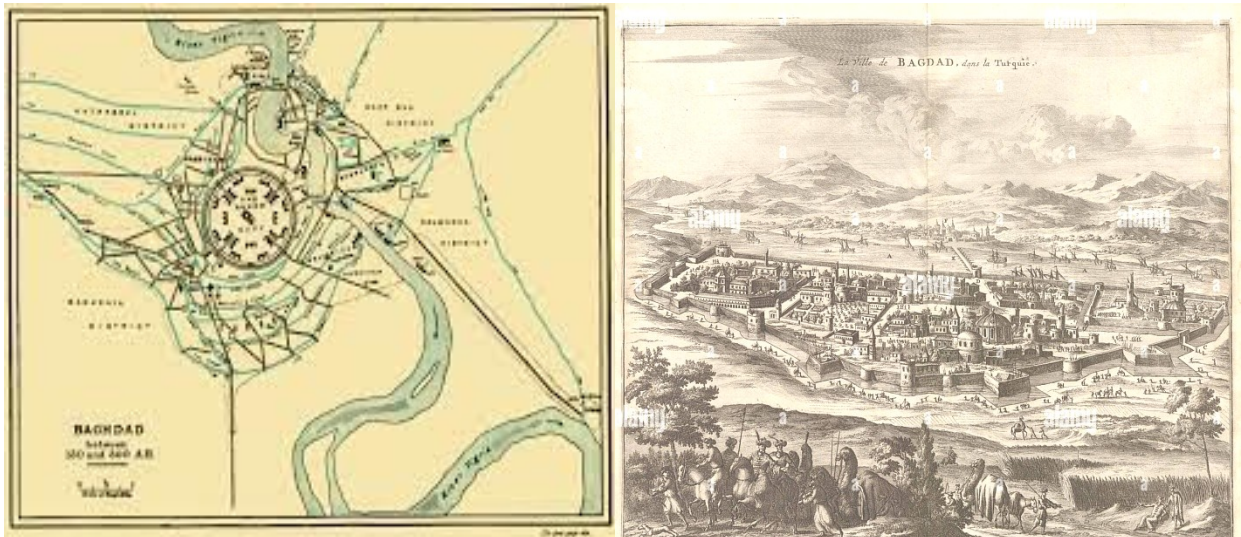
On 9 June 747 (15 Ramadan AH 129), Abu Muslim, rising from Khorasan, successfully initiated an open revolt against Umayyad rule, which was carried out under the sign of the Black Standard. Close to 10,000 soldiers were under Abu Muslim's command when the hostilities officially began in Merv. General Qahtaba followed the fleeing governor Nasr ibn Sayyar west defeating the Umayyads at the Battle of Gorgan, the Battle of Nahāvand and finally in the Battle of Karbala, all in the year 748.

The quarrel was taken up by Ibrahim's brother Abdallah, known by the name of Abu al-'Abbas as-Saffah, who defeated the Umayyads in 750 in the battle near the Great Zab and was subsequently proclaimed caliph. After this loss, Marwan fled to Egypt, where he was subsequently killed. The remainder of his family, barring one male, were also eliminated.

Immediately after their victory, As-Saffah sent his forces to Central Asia, where his forces fought against Tang expansion during the Battle of Talas. The noble Iranian family Barmakids, who were instrumental in building Baghdad, introduced the world's first recorded paper mill in the city, thus beginning a new era of intellectual rebirth in the Abbasid domain. As-Saffah focused on putting down numerous rebellions in Syria and Mesopotamia. The Byzantines conducted raids during these early distractions.



Power (752-775)



The city of Baghdad between 767 and 912 CE.



Christian Jegou. Таласская битва, 751 год. Финал битвы.

Battle of Talas, 751

The first change made by the Abbasids under Al-Mansur was to move the empire's capital from Damascus to a newly founded city. Established on the Tigris River in 762, Baghdad was closer to the Persian *mawali* support base of the Abbasids, and this move addressed their demand for less Arab

dominance in the empire. A new position, that of the wazir, was also established to delegate central authority, and even greater authority was delegated to local emirs. Al-Mansur centralised the judicial administration, and later, Harun al-Rashid established the institution of Chief Qadi to oversee it.

This resulted in a more ceremonial role for many Abbasid caliphs relative to their time under the Umayyads; the viziers began to exert greater influence, and the role of the old Arab aristocracy was slowly replaced by a Persian bureaucracy. During Al-Mansur's time, control of Al-Andalus was lost, and the Shia revolted and were defeated a year later at the Battle of Bakhamra.

The Abbasids had depended heavily on the support of Persians in their overthrow of the Umayyads. Abu al-'Abbas' successor Al-Mansur welcomed non-Arab Muslims to his court. While this helped integrate Arab and Persian cultures, it alienated many of their Arab supporters, particularly the Khorasanian Arabs who had supported them in their battles against the Umayyads. This fissure in support led to immediate problems. The Umayyads, while out of power, were not destroyed; the only surviving member of the Umayyad royal family ultimately made his way to Spain where he established himself as an independent Emir (Abd ar-Rahman I, 756). In 929, Abd ar-Rahman III assumed the title of Caliph, establishing Al Andalus from Córdoba as a rival to Baghdad as the legitimate capital of the Islamic Empire.

The Umayyad empire was mostly Arab; however, the Abbasids progressively became made up of more and more converted Muslims in which the Arabs were only one of many ethnicities.

In 756, Al-Mansur sent over 4,000 Arab mercenaries to assist the Chinese Tang dynasty in the An Shi Rebellion against An Lushan. The Abbasids, or "Black Flags" as they were commonly called, were known in Tang dynasty chronicles as the *hēiyī Dàshí*, "The Black-robed Tazi" ("Tazi" being a borrowing from Persian *Tāzī*, the word for "Arab"). Al-Rashid sent embassies to the Chinese Tang dynasty and established good relations with them. After the war, these embassies remained in China with Caliph Harun al-Rashid establishing an alliance with China.^[25] Several embassies from the Abbasid Caliphs to the Chinese court have been recorded in the T'ang Annals, the most important of these being those of Abul Abbas al-Saffah, the first Abbasid caliph; his successor Abu Jafar; and Harun al-Rashid.

Abbasid Golden Age (775-861)

The Abbasid leadership had to work hard in the last half of the 8th century (750-800) under several competent caliphs and their viziers to usher in the administrative changes needed to keep order of the political challenges created by the far-flung nature of the empire, and the limited communication across it. It was also during this early period of the dynasty,

in particular during the governance of Al-Mansur, Harun al-Rashid, and al-Ma'mun, that its reputation and power were created.

Al-Mahdi restarted the fighting with the Byzantines, and his sons continued the conflict until Empress Irene pushed for peace.^[14] After several years of peace, Nikephoros I broke the treaty, then fended off multiple incursions during the first decade of the 9th century. These attacks pushed into the Taurus Mountains, culminating with a victory at the Battle of Krasos and the massive invasion of 806, led by Rashid himself.

Rashid's navy also proved successful, taking Cyprus. Rashid decided to focus on the rebellion of Rafi ibn al-Layth in Khorasan and died while there. Military operations by the caliphate were minimal while the Byzantine Empire was fighting Abbasid rule in Syria and Anatolia, with focus shifting primarily to internal matters; Abbasid governors exerted greater autonomy and, using this increasing power, began to make their positions hereditary.

At the same time, the Abbasids faced challenges closer to home. Harun al-Rashid turned on and killed most of the Barmakids, a Persian family that had grown significantly in administrative power. During the same period, several factions began either to leave the empire for other lands or to take control of distant parts of the empire. Still, the reigns of al-Rashid and his sons were considered to be the apex of the Abbasids.

After Rashid's death, the empire was split by a civil war between the caliph al-Amin and his brother al-Ma'mun, who had the support of Khorasan. This war ended with a two-year siege of Baghdad and the eventual death of Al-Amin in 813. Al-Ma'mun ruled for 20 years of relative calm interspersed with a rebellion in Azerbaijan by the Khurramites, which was supported by the Byzantines. Al-Ma'mun was also responsible for the creation of an autonomous Khorasan, and the continued repulsing of Byzantine forays.

Al-Mu'tasim gained power in 833 and his rule marked the end of the strong caliphs. He strengthened his personal army with Turkish mercenaries and promptly restarted the war with the Byzantines. Though his attempt to seize Constantinople failed when his fleet was destroyed by a storm, his military excursions were generally successful, culminating with a resounding victory in the Sack of Amorium. The Byzantines responded by sacking Damietta in Egypt, and Al-Mutawakkil responded by sending his troops into Anatolia again, sacking and marauding until they were eventually annihilated in 863.

History of the Concept:

1. Expansion of the Caliphates, 622-750.

2. Expansion under Muhammad, 622–632
3. Expansion during the Rashidun Caliphate, 632–661
4. Expansion during the Umayyad Caliphate, 661–750

The metaphor of a golden age began to be applied in 19th-century literature about Islamic history, in the context of the western aesthetic fashion known as Orientalism. The author of a *Handbook for Travelers in Syria and Palestine* in 1868 observed that the most beautiful mosques of Damascus were "like Mohammedanism itself, now rapidly decaying" and relics of "the golden age of Islam".

There is no unambiguous definition of the term, and depending on whether it is used with a focus on cultural or on military achievement, it may be taken to refer to rather disparate time spans. Thus, one 19th century author would have it extend to the duration of the caliphate, or to "six and a half centuries", while another would have it end after only a few decades of Rashidun conquests, with the death of Umar and the First Fitna.

During the early 20th century, the term was used only occasionally and often referred to as the early military successes of the Rashidun caliphs. It was only in the second half of the 20th century that the term came to be used with any frequency, now mostly referring to the cultural flourishing of science and mathematics under the caliphates during the 9th to 11th centuries (between the establishment of organised scholarship in the House of Wisdom and the beginning of the crusades), but often extended to include part of the late 8th or the 12th to early 13th centuries. Definitions may still vary considerably. Equating the end of the golden age with the end of the caliphates is a convenient cut-off point based on a historical landmark, but it can be argued that Islamic culture had entered a gradual decline much earlier; thus, Khan (2003) identifies the proper golden age as being the two centuries between 750 and 950, arguing that the beginning loss of territories under Harun al-Rashid worsened after the death of al-Ma'mun in 833, and that the crusades in the 12th century resulted in a weakening of the Islamic empire from which it never recovered.

Religious influence

The various Quranic injunctions and Hadith (or actions of Muhammad), which place values on education and emphasize the importance of acquiring knowledge, played a vital role in influencing the Muslims of this age in their search for knowledge and the development of the body of science.

Government sponsorship

The Islamic Empire heavily patronized scholars. The money spent on the Translation Movement for some translations is estimated to be equivalent to about twice the annual research budget of the United Kingdom's Medical Research Council. The best scholars and notable translators, such as Hunayn ibn Ishaq, had salaries that are estimated to be

the equivalent of professional athletes today. The House of Wisdom was a library established in Abbasid-era Baghdad, Iraq by Caliph al-Mansur.

Diverse contributions

During this period, the Muslims showed a strong interest in assimilating the scientific knowledge of the civilizations that had been conquered. Many classic works of antiquity that might otherwise have been lost were translated from Greek, Syriac, Middle Persian, and Sanskrit into Syriac and Arabic, some of which were later in turn translated into other languages like Hebrew and Latin.

Christians, especially the adherents of the Church of the East (Nestorians), contributed to Islamic civilization during the reign of the Umayyads and the Abbasids by translating works of Greek philosophers and ancient science to Syriac and afterwards to Arabic. They also excelled in many fields, in particular philosophy, science (such as Hunayn ibn Ishaq, Yusuf Al-Khuri, Al Himsi, Qusta ibn Luqa, Masawaiyh, Patriarch Eutychius, and Jabril ibn Bukhtishu and theology. For a long period of time the personal physicians of the Abbasid Caliphs were often Assyrian Christians. Among the most prominent Christian families to serve as physicians to the caliphs were the Bukhtishu dynasty.



The Christian physician Hunayn ibn Ishaq led the House of Wisdom.

Throughout the 4th to 7th centuries, Christian scholarly work in the Greek and Syriac languages was either newly translated or had been preserved since the Hellenistic period. Among the prominent centers of learning and transmission of classical wisdom were Christian colleges such as the School of Nisibis and the School of Edessa, the pagan center of learning in Harran, and the renowned hospital and medical academy of Jundishapur, which was the intellectual, theological and scientific center of the Church of the East. The House of Wisdom was founded in Baghdad in 825, modelled after the Academy of Gondishapur. It was led by Christian physician Hunayn ibn Ishaq, with the support of Byzantine medicine. Many of the most important philosophical and scientific works of the ancient world were translated, including the work of Galen, Hippocrates, Plato, Aristotle, Ptolemy and Archimedes. Many scholars of the House of Wisdom were of Christian background.

Among the various countries and cultures conquered through successive Islamic conquests, a remarkable number of scientists originated from Persia, who contributed immensely to the scientific flourishing of the Islamic Golden Age. According to Bernard Lewis: "Culturally, politically, and most remarkable of all even religiously, the Persian contribution to this new Islamic civilization is of immense importance. The work of Iranians can be seen in every field of cultural endeavor, including Arabic poetry, to which poets of Iranian origin composing their poems in Arabic made a very significant contribution."

New technology

With a new and easier writing system, and the introduction of paper, information was democratized to the extent that, for probably the first time in history, it became possible to make a living from only writing and selling books. The use of paper spread from China into Muslim regions in the eighth century, arriving in Al-Andalus on the Iberian peninsula (modern Spain and Portugal) in the 10th century. It was easier to manufacture than parchment, less likely to crack than papyrus, and could absorb ink, making it difficult to erase and ideal for keeping records. Islamic paper makers devised assembly-line methods of hand-copying manuscripts to turn out editions far larger than any available in Europe for centuries. It was from these countries that the rest of the world learned to make paper from linen.

Madrasa Education

The centrality of scripture and its study in the Islamic tradition helped to make education a central pillar of the religion in virtually all times and places in the history of Islam.^[46] The importance of learning in the Islamic tradition is reflected in a number of hadiths attributed to Muhammad, including one that instructs the faithful to "seek knowledge, even in China".^[46] This injunction was seen to apply particularly to scholars, but also to some extent to the wider Muslim public, as exemplified by the dictum of al-Zarnuji, "learning is prescribed for us all". While it is impossible to calculate literacy rates in pre-modern Islamic societies, it is almost certain that they were relatively high, at least in comparison to their European counterparts.



Organized instruction in the Cairo Al-Azhar Mosque began in 978/Cairo Street

Education would begin at a young age with study of Arabic and the Quran, either at home or in a primary school, which was often attached to a mosque. Some students would then proceed to training in tafsir (Quranic exegesis) and fiqh (Islamic jurisprudence), which was seen as particularly important. Education focused on memorization, but also trained the more advanced students to participate as readers and writers in the tradition of commentary on the studied texts. It also involved a process of socialization of aspiring scholars, who came from virtually all social backgrounds, into the ranks of the ulema.

For the first few centuries of Islam, educational settings were entirely informal, but beginning in the 11th and 12th centuries, the ruling elites began to establish institutions of higher religious learning known as madrasas in an effort to secure support and cooperation of the ulema. Madrasas soon multiplied throughout the Islamic world, which helped to spread Islamic learning. Women also received some instruction together with men in mosques and private homes.

Madrasas were devoted principally to study of law, but they also offered other subjects such as theology, medicine, and mathematics. The madrasa complex usually consisted of a mosque, boarding house, and a library. It was maintained by a waqf (charitable endowment), which paid salaries of professors, stipends of students, and defrayed the costs of construction and maintenance. The madrasa was unlike a modern college in that it lacked a standardized curriculum or institutionalized system of certification.

1. The University of Al Karaouine, founded in 859 AD, is listed in The Guinness Book Of Records as the world's oldest degree-granting university.
2. The Al-Azhar University was another early madrasa now recognized as a university.

3. The madrasa is one of the relics of the Fatimid caliphate. The Fatimids traced their descent to Muhammad's daughter Fatimah and named the institution using a variant of her honorific title Al-Zahra (the brilliant).
4. Organized instruction in the Al-Azhar Mosque began in 978.

Sharia Law: Juristic thought gradually developed in study circles, where independent scholars met to learn from a local master and discuss religious topics. At first, these circles were fluid in their membership, but with time distinct regional legal schools crystallized around shared sets of methodological principles. As the boundaries of the schools became clearly delineated, the authority of their doctrinal tenets came to be vested in a master jurist from earlier times, who was henceforth identified as the school's founder. In the course of the first three centuries of Islam, all legal schools came to accept the broad outlines of classical legal theory, according to which Islamic law had to be firmly rooted in the Quran and hadith.

The classical theory of Islamic jurisprudence elaborates how scriptures should be interpreted from the standpoint of linguistics and rhetoric. The body of substantive Islamic law was created by independent jurists (muftis). Their legal opinions (fatwas) were taken into account by ruler-appointed judges who presided over qāḍī's courts, and by maẓālim courts, which were controlled by the ruler's council and administered criminal law.

Islamic theology: Classical Islamic theology emerged from an early doctrinal controversy which pitted the ahl al-hadith movement, led by Ahmad ibn Hanbal, who considered the Quran and authentic hadith to be the only acceptable authority in matters of faith, against Mu'tazilites and other theological currents, who developed theological doctrines using rationalistic methods. In 833 the caliph al-Ma'mun tried to impose Mu'tazilite theology on all religious scholars and instituted an inquisition (mihna), but the attempts to impose a caliphal writ in matters of religious orthodoxy ultimately failed. This controversy persisted until al-Ash'ari (874–936) found a middle ground between Mu'tazilite rationalism and Hanbalite literalism, using the rationalistic methods championed by Mu'tazilites to defend most substantive tenets maintained by ahl al-hadith. A rival compromise between rationalism and literalism emerged from the work of al-Maturidi (d. c. 944), and, although a minority of scholars remained faithful to the early ahl al-hadith creed, Ash'ari and Maturidi theology came to dominate Sunni Islam from the 10th century on.



An Arabic manuscript from the 13th century depicting Socrates (Soqrāt) in discussion with his pupils

Islamic Philosophy; Ibn Sina (Avicenna) and Ibn Rushd (Averroes) played a major role in interpreting the works of Aristotle, whose ideas came to dominate the non-religious thought of the Christian and Muslim worlds. According to the Stanford Encyclopedia of Philosophy, translation of philosophical texts from Arabic to Latin in Western Europe "led to the transformation of almost all philosophical disciplines in the medieval Latin world".^[64] The influence of Islamic philosophers in Europe was particularly strong in natural philosophy, psychology and metaphysics, though it also influenced the study of logic and ethics.

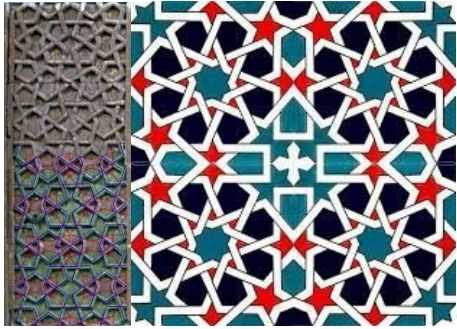
Metaphysics

Ibn Sina argued his "Floating man" thought experiment concerning self-awareness, in which a man prevented of sense experience by being blindfolded and free falling would still be aware of his existence.

Epistemology

In epistemology, Ibn Tufail wrote the novel *Hayy ibn Yaqdhan* and in response Ibn al-Nafis wrote the novel *Theologus Autodidactus*. Both were concerning autodidacticism as illuminated through the life of a feral child spontaneously generated in a cave on a desert island.

Mathematics: Algebra



Geometric patterns: an archway in the Sultan's lodge in the Ottoman Green Mosque in Bursa, Turkey (1424), its girih strapwork forming 10-point stars and pentagons

Persian mathematician Muḥammad ibn Mūsā al-Khwārizmī played a significant role in the development of algebra, arithmetic and Hindu-Arabic numerals. He has been described as the father or founder of algebra.

Another Persian mathematician, Omar Khayyam, is credited with identifying the foundations of Analytic geometry. Omar Khayyam found the general geometric solution of the cubic equation. His book *Treatise on Demonstrations of Problems of Algebra* (1070), which laid down the principles of algebra, is part of the body of Persian mathematics that was eventually transmitted to Europe.

Yet another Persian mathematician, Sharaf al-Dīn al-Tūsī, found algebraic and numerical solutions to various cases of cubic equations. He also developed the concept of a function.

Geometry

Islamic art makes use of geometric patterns and symmetries in many of its art forms, notably in girih tilings. These are formed using a set of five tile shapes, namely a regular decagon, an elongated hexagon, a bow tie, a rhombus, and a regular pentagon. All the sides of these tiles have the same length; and all their angles are multiples of 36° ($\pi/5$ radians), offering fivefold and tenfold symmetries. The tiles are decorated with strapwork lines (girih), generally more visible than the tile boundaries. In 2007, the physicists Peter Lu and Paul Steinhardt argued that girih from the 15th century resembled quasicrystalline Penrose tilings. Elaborate geometric zellige tilework is a distinctive element in Moroccan architecture. Muqarnas vaults are three-dimensional but were designed in two dimensions with drawings of geometrical cells.

Trigonometry



Astrolabe

Ibn Mu'ādh al-Jayyānī is one of several Islamic mathematicians to whom the law of sines is attributed; he wrote his *The Book of Unknown Arcs of a Sphere* in the 11th century. This formula relates the lengths of the sides of any triangle, rather than only right triangles, to the sines of its angles. According to the law,

Calculus

Alhazen discovered the sum formula for the fourth power, using a method that could be generally used to determine the sum for any integral power. He used this to find the volume of a paraboloid. He could find the integral formula for any polynomial without having developed a general formula.

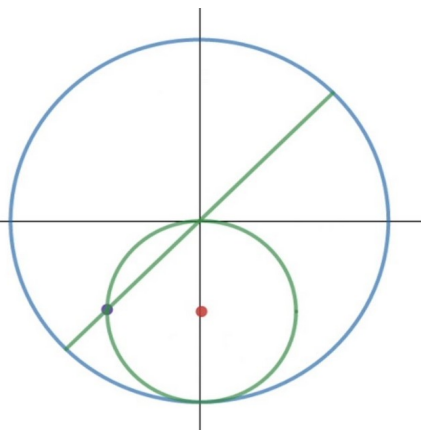
Scientific method

Ibn al-Haytham (Alhazen) was a significant figure in the history of scientific method, particularly in his approach to experimentation, and has been described as the "world's first true scientist".

Avicenna made rules for testing the effectiveness of drugs, including that the effect produced by the experimental drug should be seen constantly or after many repetitions, to be counted.^[86] The physician Rhazes was an early proponent of experimental medicine and recommended using control for clinical research. He said: "If you want to study the effect of bloodletting on a condition, divide the patients into two groups, perform bloodletting only on one group, watch both, and compare the results."

Astronomy

Tusi Couple



Tusi couple

In about 964 AD, the Persian astronomer Abd al-Rahman al-Sufi, writing in his *Book of Fixed Stars*, described a "nebulous spot" in the Andromeda constellation, the first definitive reference to what we now know is the Andromeda Galaxy, the nearest spiral galaxy to our galaxy. Nasir al-Din al-Tusi invented a geometrical technique called a Tusi-couple, which generates linear motion from the sum of two circular motions to replace Ptolemy's problematic equant. The Tusi couple was later employed in Ibn al-Shatir's geocentric model and Nicolaus Copernicus' heliocentric model although it is not known who the intermediary is or if Copernicus rediscovered the technique independently. The names for some of the stars used, including Rigel and Vega, are still in use.

Physics

Alhazen played a role in the development of optics. One of the prevailing theories of vision in his time and place was the emission theory supported by Euclid and Ptolemy, where sight worked by the eye emitting rays of light, and the other was the Aristotelean theory that sight worked when the essence of objects flows into the eyes. Alhazen correctly argued that vision occurred when light, traveling in straight lines, reflects off an object into the eyes. Al-Biruni wrote of his insights into light, stating that its velocity must be immense when compared to the speed of sound.

Chemistry

The early Islamic period saw the establishment of some of the longest lived theoretical frameworks in alchemy and chemistry. The sulfur-mercury theory of metals, first attested in pseudo-Apollonius of Tyana's *Sirr al-khalīqa* ("The Secret of Creation", c. 750-850) and in the Arabic writings attributed to Jābir ibn Ḥayyān (written c. 850-950), would remain the basis of all theories of metallic composition until the eighteenth century. Likewise, the *Emerald Tablet*, a compact and cryptic text that all later alchemists up to and including Isaac

Newton (1642-1727) would regard as the foundation of their art, first occurs in the *Sirr al-khalīqa* and in one of the works attributed to Jābir.

Substantial advances were also made in practical chemistry. The works attributed to Jābir, and those of the Persian alchemist and physician Abū Bakr al-Rāzī (854-925), contain the earliest known systematic classifications of chemical substances. However, alchemists were not only interested in identifying and classifying chemical substances, but also in artificially creating them. Significant examples from the medieval Islamic world include the synthesis of ammonium chloride from organic substances as described in the works attributed to Jābir, and Abū Bakr al-Rāzī's experiments with vitriol, which would eventually lead to the discovery of mineral acids like sulfuric acid and nitric acid by thirteenth century Latin alchemists such as pseudo-Geber.

Geodesy

Al-Biruni (973-1048) estimated the radius of the earth as 6339.6 km (modern value is c. 6,371 km), the best estimate at that time.

Biology



The eye, according to Huain ibn Ishaq. From a manuscript dated circa 1200.

In the cardiovascular system, Ibn al-Nafis in his *Commentary on Anatomy in Avicenna's Canon* was the first known scholar to contradict the contention of the Galen School that blood could pass between the ventricles in the heart through the cardiac inter-ventricular septum that separates them, saying that there is no passage between the ventricles at this point.^[100] Instead, he correctly argued that all the blood that reached the left ventricle did so after passing through the lung. He also stated that there must be small communications, or pores, between the pulmonary artery and pulmonary vein, a prediction that preceded the discovery of the pulmonary capillaries of Marcello Malpighi by 400

years. The *Commentary* was rediscovered in the twentieth century in the Prussian State Library in Berlin; whether its view of the pulmonary circulation influenced scientists such as Michael Servetus is unclear.

In the nervous system, Rhazes stated that nerves had motor or sensory functions, describing 7 cranial and 31 spinal cord nerves. He assigned a numerical order to the cranial nerves from the optic to the hypoglossal nerves. He classified the spinal nerves into 8 cervical, 12 thoracic, 5 lumbar, 3 sacral, and 3 coccygeal nerves. He used this to link clinical signs of injury to the corresponding location of lesions in the nervous system.

Modern commentators have likened medieval accounts of the "struggle for existence" in the animal kingdom to the framework of the theory of evolution. Thus, in his survey of the history of the ideas which led to the theory of natural selection, Conway Zirkle noted that al-Jahiz was one of those who discussed a "struggle for existence", in his *Kitāb al-Hayawān* (Book of Animals), written in the 9th century. In the 13th century, Nasir al-Din al-Tusi believed that humans were derived from advanced animals, saying, "Such humans [probably anthropoid apes] live in the Western Sudan and other distant corners of the world. They are close to animals by their habits, deeds and behavior." In 1377, Ibn Khaldun in his *Muqaddimah* stated, "The animal kingdom was developed, its species multiplied, and in the gradual process of Creation, it ended in man and arising from the world of the monkeys."

List of inventions in the medieval Islamic world

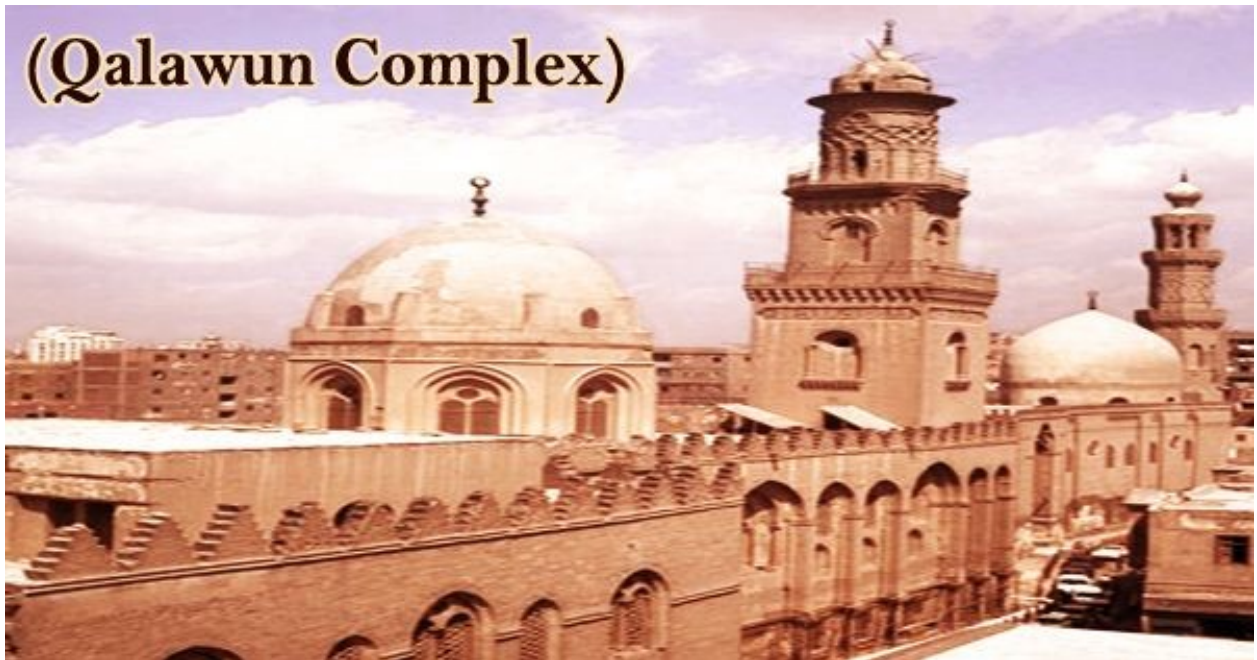
The Banū Mūsā brothers, in their Book of Ingenious Devices, describe an automatic flute player which may have been the first programmable machine. The flute sounds were produced through hot steam and the user could adjust the device to various patterns so that they could get various sounds from it.



Ibn Khaldun is regarded to be among the founding fathers of modern sociology, historiography, demography, and economics.

Archiving was a respected position during this time in Islam though most of the governing documents have been lost over time. However, from correspondence and remaining documentation gives a hint of the social climate as well as shows that the archives were detailed and vast during their time. All letters that were received or sent on behalf of the governing bodies were copied, archived and noted for filing. The position of the archivist was seen as one that had to have a high level of devotion as they held the records of all pertinent transactions.

Hospitals





Entrance to the Qalawun complex which housed the notable Mansuri hospital in Cairo

The earliest known Islamic hospital was built in 805 in Baghdad by order of Harun Al-Rashid, and the most important of Baghdad's hospitals was established in 982 by the Buyid ruler 'Adud al-Dawla. The best documented early Islamic hospitals are the great Syro-Egyptian establishments of the 12th and 13th centuries. By the tenth century, Baghdad had five more hospitals, while Damascus had six hospitals by the 15th century and Córdoba alone had 50 major hospitals, many exclusively for the military.

The typical hospital was divided into departments such as systemic diseases, surgery, and orthopedics, with larger hospitals having more diverse specialties. "Systemic diseases" was the rough equivalent of today's internal medicine and was further divided into sections such as fever, infections and digestive issues. Every department had an officer-in-charge, a presiding officer and a supervising specialist. The hospitals also had lecture theaters and libraries. Hospitals staff included sanitary inspectors, who regulated cleanliness, and accountants and other administrative staff. The hospitals were typically run by a three-man board comprising a non-medical administrator, the chief pharmacist, called the shaykh saydalani, who was equal in rank to the chief physician, who served as mutwalli (dean).^[86] Medical facilities traditionally closed each night, but by the 10th century laws were passed to keep hospitals open 24 hours a day.

For less serious cases, physicians staffed outpatient clinics. Cities also had first aid centers staffed by physicians for emergencies that were often located in busy public places, such as big gatherings for Friday prayers. The region also had mobile units staffed by doctors and pharmacists who were supposed to meet the need of remote communities. Baghdad was also known to have a separate hospital for convicts since the early 10th century after the vizier 'Ali ibn Isa ibn Jarrah ibn Thabit wrote to Baghdad's chief medical officer that "prisons must have their own doctors who should examine them every day". The first hospital built in Egypt, in Cairo's Southwestern quarter, was the first documented facility to care for mental illnesses. In Aleppo's Arghun Hospital, care for mental illness included abundant light, fresh air, running water and music.

Medical students would accompany physicians and participate in patient care. Hospitals in this era were the first to require medical diplomas to license doctors. The licensing test was administered by the region's government appointed chief medical officer. The test had two steps; the first was to write a treatise, on the subject the candidate wished to obtain a certificate, of original research or commentary of existing texts, which they were encouraged to scrutinize for errors. The second step was to answer questions in an interview with the chief medical officer. Physicians worked fixed hours and medical staff salaries were fixed by law. For regulating the quality of care and arbitrating cases, it is related that if a patient dies, their family presents the doctor's prescriptions to the chief physician who would judge if the death was natural or if it was by negligence, in which case the family would be entitled to compensation from the doctor. The hospitals had male and female quarters while some hospitals only saw men and other hospitals, staffed by women physicians, only saw women. While women physicians practiced medicine, many largely focused on obstetrics.

Hospitals were forbidden by law to turn away patients who were unable to pay. Eventually, charitable foundations called waqfs were formed to support hospitals, as well as schools. Part of the state budget also went towards maintaining hospitals. While the services of the hospital were free for all citizens and patients were sometimes given a small stipend to support recovery upon discharge, individual physicians occasionally charged fees.^[110] In a notable endowment, a 13th-century governor of Egypt Al-Mansur Qalawun ordained a foundation for the Qalawun hospital that would contain a mosque and a chapel, separate wards for different diseases, a library for doctors and a pharmacy and the hospital is used today for ophthalmology. The Qalawun hospital was based in a former Fatimid palace which had accommodation for 8,000 people -"it served 4,000 patients daily." The waqf stated,

... The hospital shall keep all patients, men and women, until they are completely recovered. All costs are to be borne by the hospital whether

the people come from afar or near, whether they are residents or foreigners, strong or weak, low or high, rich or poor, employed or unemployed, blind or sighted, physically or mentally ill, learned or illiterate. There are no conditions of consideration and payment, none is objected to or even indirectly hinted at for non-payment.

Pharmacies

Arabic scholars used their natural and cultural resources to contribute to the strong development of pharmacology. They believed that God had provided the means for a cure for every disease. However, there was confusion about the nature of some ancient plants that existed during this time.

A prominent figure that was influential in the development of pharmacy used the name Yūhannā ibn Māsawaiyh (circa 777-857). He was referred to as "The Divine Mesue" and "The Prince of Medicine" by European scholars. Māsawaiyh led the first private medical school in Baghdad and wrote three major pharmaceutical treatises. These treatises consisted of works over compound medicines, humors, and pharmaceutical recipes that provided instructions on how they were to be prepared. In the Latin West, these works were typically published together under the title "Opera Medicinalia" and were broken up into "De simplicibus", "Grabadin", and "Canones universales". Although Māsawaiyh's influence was so significant that his writings became the most dominant source of pharmaceutical writings, his exact identity remains unclear.

In the past, all substances that were to be introduced into, on or near the human body were labeled as medicine. The earliest distinction between medicine and pharmacy as disciplines began in the seventh century, when pharmacists and apothecaries appeared in the first hospitals. Demand for drugs increased as the population increased. By the ninth century where pharmacy was established as an independent and well-defined profession by Muslim scholars. It is said by many historians that the opening of the first private pharmacy in the eighth century marks the independence of pharmacy from medicine.

The emergence of medicine and pharmacy within the Islamic caliphate by the ninth century occurred at the same time as rapid expansion of many scientific institutions, libraries, schools, hospitals and then pharmacies in many Muslim cities. The Qur'an provided the basis for the development of professional ethics where the rise of ritual washing also influenced the importance of hygiene in pharmacology. Pharmacies were periodically visited by government inspectors called muhtasib, who checked to see that the medicines were mixed properly, not diluted and kept in clean jars. Work done by the muhtasib was carefully outlined in manuals that explained ways of examining and recognizing falsified drugs, foods and spices. It was forbidden for pharmacists to perform

medical treatment without the presence of a physician, while physicians were limited to the preparation and handling of medications. It was feared that recipes would fall into the hands of someone without the proper pharmaceutical training. Licenses were required to run private practices. Violators were fined or beaten.

Medicine

The theory of Humorism was largely dominant during this time. Arab physician Ibn Zuhri provided proof that scabies is caused by the itch mite and that it can be cured by removing the parasite without the need for purging, bleeding or other treatments called for by humorism, making a break with the humorism of Galen and Ibn Sina. Rhazes differentiated through careful observation the two diseases smallpox and measles, which were previously lumped together as a single disease that caused rashes. This was based on location and the time of the appearance of the symptoms and he also scaled the degree of severity and prognosis of infections according to the color and location of rashes. Al-Zahrawi was the first physician to describe an ectopic pregnancy, and the first physician to identify the hereditary nature of haemophilia.

For Islamic scholars, Indian and Greek physicians and medical researchers Sushruta, Galen, Mankah, Atreya, Hippocrates, Charaka, and Agnivesa were pre-eminent authorities. In order to make the Indian and Greek tradition more accessible, understandable, and teachable, Islamic scholars ordered and made more systematic the vast Indian and Greco-Roman medical knowledge by writing encyclopedias and summaries. Sometimes, past scholars were criticized, like Rhazes who criticized and refuted Galen's revered theories, most notably, the Theory of Humors and was thus accused of ignorance.

Surgery

Al-Zahrawi was a tenth century Arab physician. He is sometimes referred to as the "Father of surgery". He describes what is thought to be the first attempt at reduction mammoplasty for the management of gynaecomastia and the first mastectomy to treat breast cancer. He is credited with the performance of the first thyroidectomy. He wrote three textbooks on surgery, including "*Manual of Medical Practitioners*" which contains a catalog of 278 instruments used in surgery.

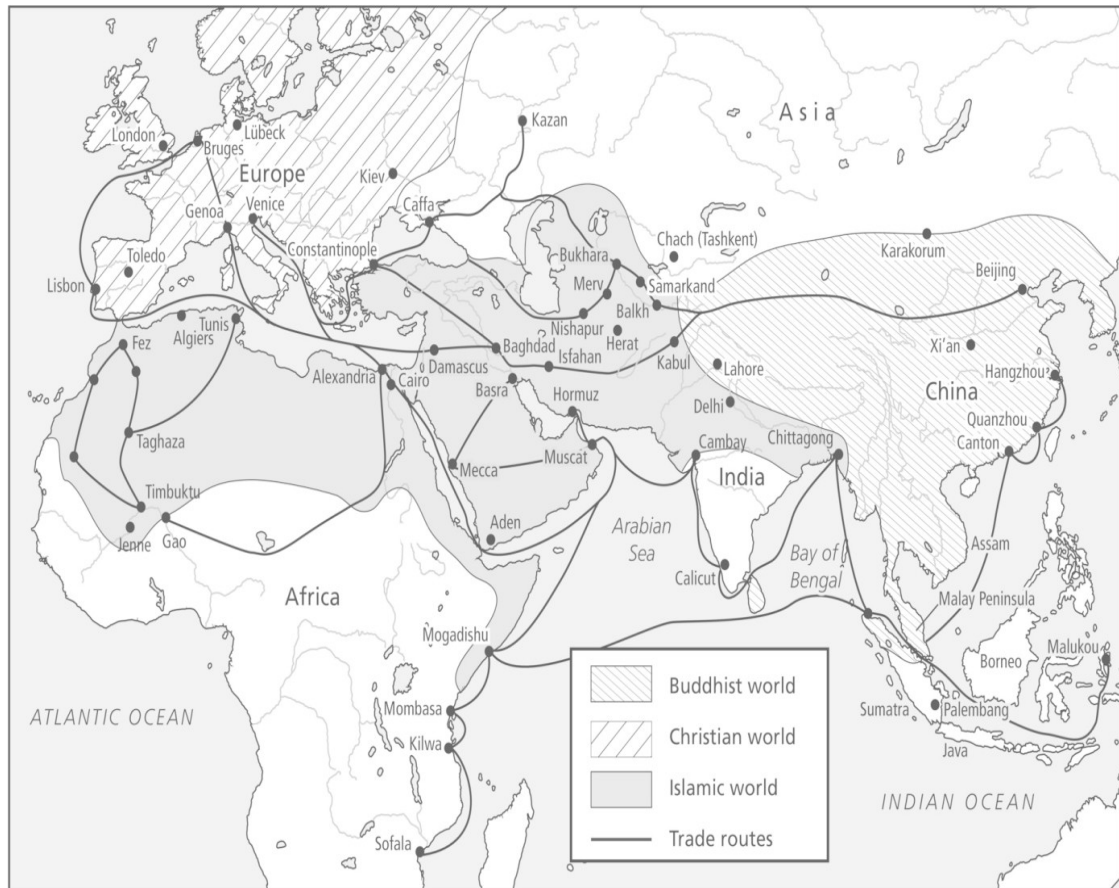
Apart from the Nile, Tigris, and Euphrates, navigable rivers were uncommon in the Middle East, so transport by sea was very important. Navigational sciences were highly developed, making use of a rudimentary sextant (known as a kamal). When combined with detailed maps of the period, sailors were able to sail across oceans rather than skirt along the coast. Muslim sailors were also responsible for reintroducing large, three-masted merchant vessels to

the Mediterranean. The name caravel may derive from an earlier Arab boat known as the *qārib*.

Many Muslims went to China to trade, and these Muslims began to have a great economic influence on the country. Muslims virtually dominated the import/export industry by the time of the Sung dynasty (960–1279). Muhammad al-Idrisi created the Tabula Rogeriana, the best maps of the Middle Ages, used by various explorers such as Christopher Columbus and Vasco Da Gama for their voyages in America and India.^[130]

Agriculture

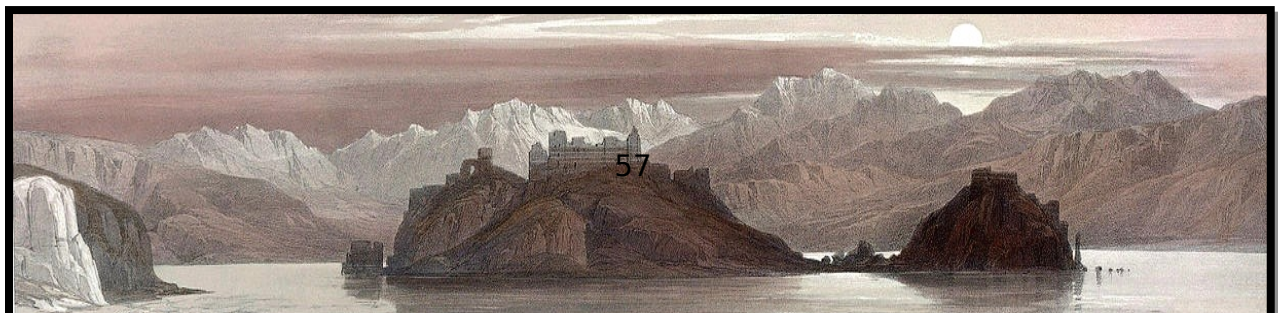
The Arabs of Al-Andalus exerted a large impact on Spanish agriculture, including the restoration of Roman-era aqueducts and irrigation channels, as well as the introduction of new technologies such as the *acequias* (derived from the qanats of Persia) and Persian gardens (such as at the Generalife). In Spain and Sicily, the Arabs introduced crops and foodstuffs from the Persia and India such as rice, sugarcane, oranges, lemons, bananas, saffron, carrots, apricots and eggplants, as well as restoring cultivation of olives and pomegranates from Greco-Roman times. The Palmeral of Elche in southern Spain is a UNESCO World Heritage site that is emblematic of the Islamic agricultural legacy in Europe.



Trade routes inherited by the Muslim civilization were ruined by invading Mongols, which according to Ibn Khaldun ruined economies

In 1206, Genghis Khan established a powerful dynasty among the Mongols of central Asia. During the 13th century, this Mongol Empire conquered most of the Eurasian land mass, including China in the east and much of the old Islamic caliphate (as well as Kievan Rus') in the west. The destruction of Baghdad and the House of Wisdom by Hulagu Khan in 1258 has been seen by some as the end of the Islamic Golden Age.

The Ottoman conquest of the Arabic-speaking Middle East in 1516–17 placed the traditional heart of the Islamic world under Ottoman Turkish control. The rational sciences continued to flourish in the Middle East during the Ottoman period.





Economics

To account for the decline of Islamic science, it has been argued that the Sunni Revival in the 11th and 12th centuries produced a series of institutional changes that decreased the relative payoff to producing scientific works. With the spread of madrasas and the greater influence of religious leaders, it became more lucrative to produce religious knowledge.

Ahmad Y. al-Hassan has rejected the thesis that lack of creative thinking was a cause, arguing that science was always kept separate from religious argument; he instead analyzes the decline in terms of economic and political factors, drawing on the work of the 14th-century writer Ibn Khaldun. Al-Hassan extended the golden age up to the 16th century, noting that scientific activity continued to flourish up until then.^[3] Several other contemporary scholars have also extended it to around the 16th to 17th centuries, and analysed the decline in terms of political and economic factors. More recent research has challenged the notion that it underwent decline even at that time, citing a revival of works produced on rational scientific topics during the seventeenth century.

Current research has led to the conclusion that "the available evidence is consistent with the hypothesis that an increase in the political power of these elites caused the observed decline in scientific output."

Culture

Economic historian Joel Mokyr has argued that Islamic philosopher al-Ghazali (1058–1111) "was a key figure in the decline in Islamic science", as his works contributed to rising mysticism and occasionalism in the Islamic world. Against this view, Saliba (2007) has given a number of examples especially of astronomical research flourishing after the time of al-Ghazali.



Abū 'Alī Mansūr (13 August 985 – 13 February 1021), better known by his regnal name **al-Ḥākim bi-Amr Allāh**; literally "The Ruler by the Order of God"), was the sixth Fatimid caliph and 16th Ismailiimam (996–1021). **Al-**

Hakim is an important figure in a number of Shia Ismaili sects, such as the world's 15 million Nizaris and 1-2 million Musta'lis, in addition to the 2 million Druze of the Levant whose eponymous founder Hamza ibn Ali ibn Ahmad proclaimed him as the incarnation of God in 1018.

Histories of al-Hakim can prove controversial, as diverse views of his life and legacy exist. Historian Paul Walker writes: "Ultimately, both views of him, the mad and despotic tyrant (like Germanic and Roman despots) irrationally given to killing those around him on a whim, and the ideal supreme ruler, divinely ordained and chosen, whose every action was just and righteous, were to persist, the one among his enemies and those who rebelled against him, and the other in the hearts of true believers, who, while perhaps perplexed by events, nonetheless remained avidly loyal to him to the end.

What Happened to Islamic Civilization After the Golden Age of Islam?

The Mongol invasion and the fall of Baghdad in 1258 CE divided Muslim lands into fractured political dominions, and, within a century or two, a new Islamic world order was born, dominated by three competing "gunpowder empires." These, like their European counterparts, used gunpowder technology for military and political ends, and ruled with a combination of centralized bureaucracy, efficient and broad tax-collection systems, ever-ready military forces, and independent sultans; only the religious scholars, the *ulama* provided the people with a sense of continuity and a relation to the Islamic past.

The sultans of the Ottoman empire (1292-1924 CE) considered themselves the heirs to the Abbassids and the defenders of Sunni Islam, until the fall of their dynasty with its defeat in World War I. They ruled from Istanbul the lands between Anatolia and North Africa, and produced masterpieces in book-culture, especially in Islamic and secular law, but particularly in material culture, as one sees it in Istanbul's Hagia Sofia, the superb Blue Mosque, and the grand Sulaymaniyya complex, in exquisite metalwork and decorated glass work, and in creative calligraphy, among other arts.

The sultans of the Safavid empire (1501-1722 CE) in Iran consolidated Twelver Shi'i Islam, oversaw the strengthening its beliefs through the writing of books, and built magnificent mosques, colleges (*madrasas*), and mausoleums, especially in their capital, Isfahan, for example, in the Naghsh-e Jahan Square, the Chahar Bagh Madrasa, and the royal gardens of Isfahan. The sultans of the Mughal empire (1556-1857 CE), who showed sufi leanings, governed from Delhi, until they were ousted by the British, a population with a Hindu majority, and hence produced novel forms of cultural Islam. They also produced some of the finest works of Islamic art,

notably in the area of exquisite miniatures and in architectural monuments, of which the famous Taj Mahal is but one example. After these empires, most of the Islamic lands entered the colonial period, after which the term “Islamic civilization” becomes mostly a reference to a glorious past, now gone.

What Are the Most Important and Famous Monuments that Were Produced in the Golden Age of Islamic Civilization?

The oldest such monument, with its distinctive golden dome, is the **Dome of the Rock**, built in Jerusalem between 685 and 691 CE. It was probably meant to express the Muslims’ growing self-confidence and Islam’s competitiveness to local buildings of other religions as well as to Byzantium. Next to it sits the al-Aqsa mosque, built only shortly after the Dome on the spot believed to be the starting point of the Prophet Muhammad’s nocturnal journey to heaven (*mi’raj*).

The Great Umayyad Mosque of Damascus was built between 706 and 715 on the site of the Byzantine Church of John the Baptist. Despite many renovations, its original is still visible with its elaborate mosaics, the shrines containing the heads of John the Baptist and al-Husayn, the Prophet’s martyred grandson. The tomb of Saladin is in a garden adjoining one of the mosque’s walls

The construction of the magnificent **Mosque of Cordoba** began in 784 in the capital of Muslim Spain, or al-Andalus, but was reworked for two centuries until 987, when it was the second largest mosque in the world, with a distinctive “forest” of slim, exquisite columns and decorated walls. It was transformed into a cathedral after the re-conquest of Cordoba in 1236.

The Alhambra, “The Red Fortress,” is a royal residence and fortress built on top of a hill overlooking Granada, in Muslim Spain, by Granada’s last Nasrid kings in the mid-fourteenth century. It is known for its courtyard, lion- and myrtle-fountains, gardens, and irrigation systems.



The Fatimids built the al-Azhar mosque in 969-971 in the city they founded around the old city, Cairo, and in 988 a college (*madrasa*) was attached to it, making it the first institution of higher learning in Islamic history. The shrine of the eighth imam of the Twelver Shi'ites, 'Ali al-Rida (Ali Reza, in Persian) first built upon his death in 818 in Iran's second largest city, Mashhad, but additions continued to be made on it for a long time. BELOW pic



House of Knowledge

Also, House of Wisdom (Arabic: دار الحكمة, romanized: *Dār al-Ḥikmah*) or House of Knowledge (Arabic: دار العلم, romanized: *Dār al-ʿIlm*) on the other hand was an ancient university of the Fatimid Caliphate (today's Egypt), built in 1004 CE as a library and converted by the Fatimid Imam-Caliph al-Hakim bi-Amr Allah to a state university in the same year.

The library's collection was so vast that historian, Ibn Abi Tayyi' described it as a "Wonder of the world". Historian Ahmed Bin Ali Maqrizi says "The House of Wisdom in Cairo did not open its doors to the public except before the furnishing, decoration and beautification of all the doors and corridors, and many servants were appointed. And the number of shelves in forty cabinets, each one of them could accommodate about eighteen thousand books. And (the shelves) were open, and books accessible to everyone. And one who wants a book, then the book can be easily found by him. If a book cannot be found by oneself, one can seek the help of hired handlers."

In keeping with the Islamic tradition of knowledge, the Fatimids collected books on a variety of subjects and their libraries attracted the attention of scholars from across the world. The Imam-Caliph al-Hakim was a great patron of learning and provided paper, pens, ink and inkstands without charge to all those who wished to study there.

A feature of these institutions was the emergence of polymaths (*hakims* or *sages*), that is, scholars who worked in a large number of different areas. Al-Razi, Ibn Sina, and Ibn al Nafis were polymaths. They wrote on vast and diverse fields that included physiology, medicine, ophthalmology, embryology, psychology, philosophy, law, and theology. The most important scientists of Islamic civilization have been the polymaths and their role in the transmission of the sciences was central.

The *hakim* was most often a poet and a writer, skilled in the practice of medicine as well as astronomy and mathematics. These multi-talented sages, the central figures in Islamic science, elaborated and personified the unity of the sciences. They orchestrated scientific development through their insights, and excelled in their explorations as well.

The traditional perspective of historians such as Bertrand Russell (1872-1970, British philosopher, mathematician, historian, and social critic) is that "Islamic science, while admirable in many technical ways, lacked the intellectual energy required for innovation and was chiefly important as a preserver of ancient knowledge and transmitter to medieval Europe." [8,9]

Other historians, however, hold the opposite view that a Muslim scientific revolution occurred during the Middle Ages.

In the area of education and learning, one of Hakim's most important contributions was the founding in 1005 of the *Dar al-Alem* (House of Knowledge) or *Dar al-Hikma* (House of Wisdom). Founded by the Abbasid caliph Al-Ma'mun, the House of Wisdom (Arabic: بيت الحكمة; *Bayt al-Hikma*) in Baghdad, modelled after the Academy of Gondishapur. Led by the Christian physician Hunayn ibn Ishaq, and with support by Byzance, all available works from the antique world were translated of Galen, Hippocrates, Plato, Aristotle, Ptolemy and Archimedes.

It is currently understood that the early Islamic medicine was mainly informed directly from Greek sources from the Academy of Alexandria, translated into the Arabic language; the influence of the Persian medical tradition seems to be limited to the materia medica, although the Persian physicians were familiar with the Greek sources as well.

A wide range of subjects ranging from the Qur'an and hadith to philosophy and astronomy were taught at the Dar al-alem, which was equipped with a vast library. Access to education was made available to the public and many Fatimid da'is received at least part of their training in this major institution of learning which served the Ismaili da'wa (mission) until the downfall of the Fatimid dynasty. For more than 100 years, Dar al-'Ilm distinguished itself as a center of learning where astronomers, mathematicians, grammarians, logicians, physicians, philologists, jurists and others conducted research, gave lectures and collaborated. All were welcomed, and it remained unfettered by political pressures or partisan influences. Though built as as a library and it was converted by the Fatimid Imam-Caliph al-Hakim bi-Amr Allah to a state university in the same year.

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patron of learning and provided paper, pens, ink and inkstands without charge to all those who wished to study there.

Sessions of Wisdom Al Hakim

Hakim made the education of the Ismailis and the Fatimid da'is a priority; in his time various study sessions (*majalis*) were established in Cairo. Hakim provided financial support and endowments for these educational activities. The private 'wisdom sessions' (*majalis al-hikma*) devoted to esoteric Ismaili doctrines and reserved exclusively for initiates, now became organized so as to be accessible to different categories of participants. Al Hakim himself often attended these sessions which were held at the Fatimid palace. The name (*majalis al-hikma*) is still used by the Druze, Nizari and Taiyabi Ismailis as the name of the building in which their religious assembly and worship is carried, often abbreviated as *Majlis* (session).

Druze-Political Concepts of Islam:

The present role of Islam in Middle Eastern politics is not a continuation but a reconstruction of the historical paradigms. In the pre-modern era, there were two Islamic paradigms. One was of an integral state and society unified under the political and moral leadership of a charismatic religious teacher; the other, of a society divided between state and religious institutions and differentiated political and religious elites, the latter being the custodians of the true Islam. The second tradition made room for purely secular monarchical concepts and a secular political culture. In the modern era, the historical Islamic paradigms have little influence on state formation. Even the avowedly Islamic states do not really hark back to the past but represent, for the most part, contemporary national states appealing to a new concept of national-state Islam.

From-The Golden Age: The Political Concepts of Islam

Ira M. Lapidus, The Annals of the American Academy of Political and Social Science, Vol. 524, Political Islam (Nov., 1992), pp. 13-25 (13 pages), Published By: Sage Publications, Inc.



da vinci painting of the baghdad house of wisdom

Chapter 1

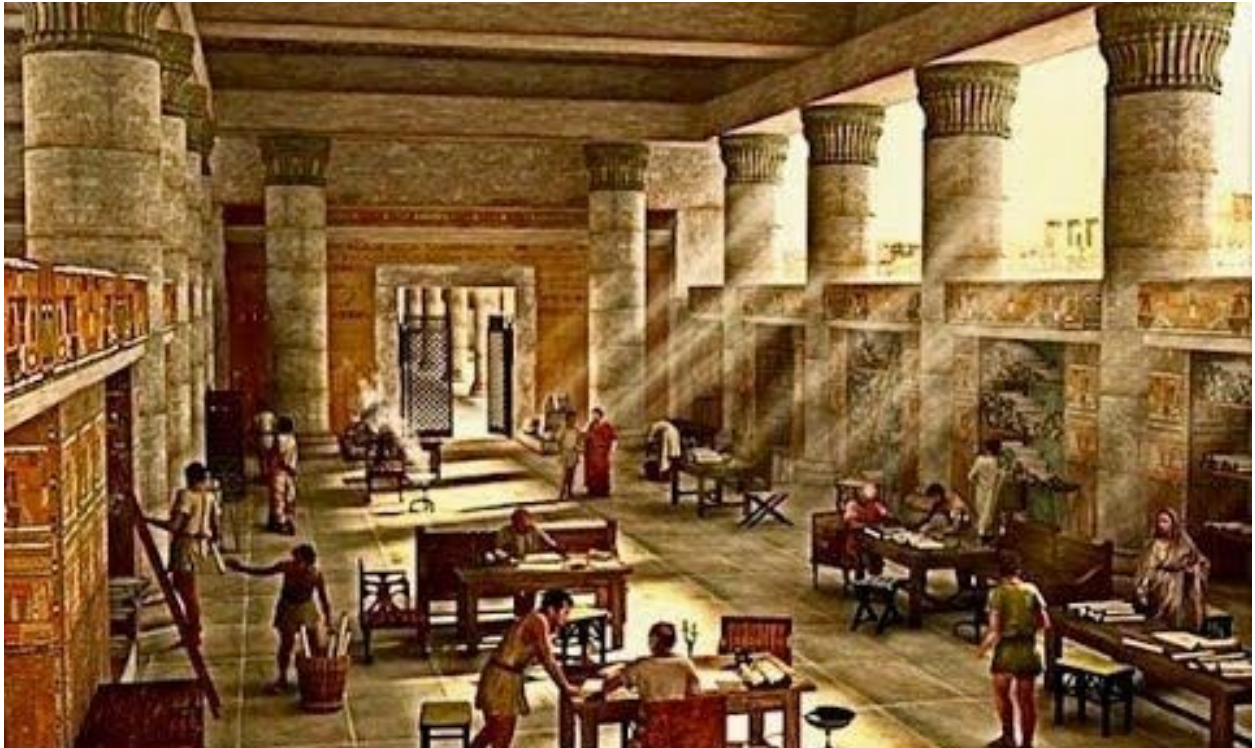
Ancient Knowledge Centers and Libraries



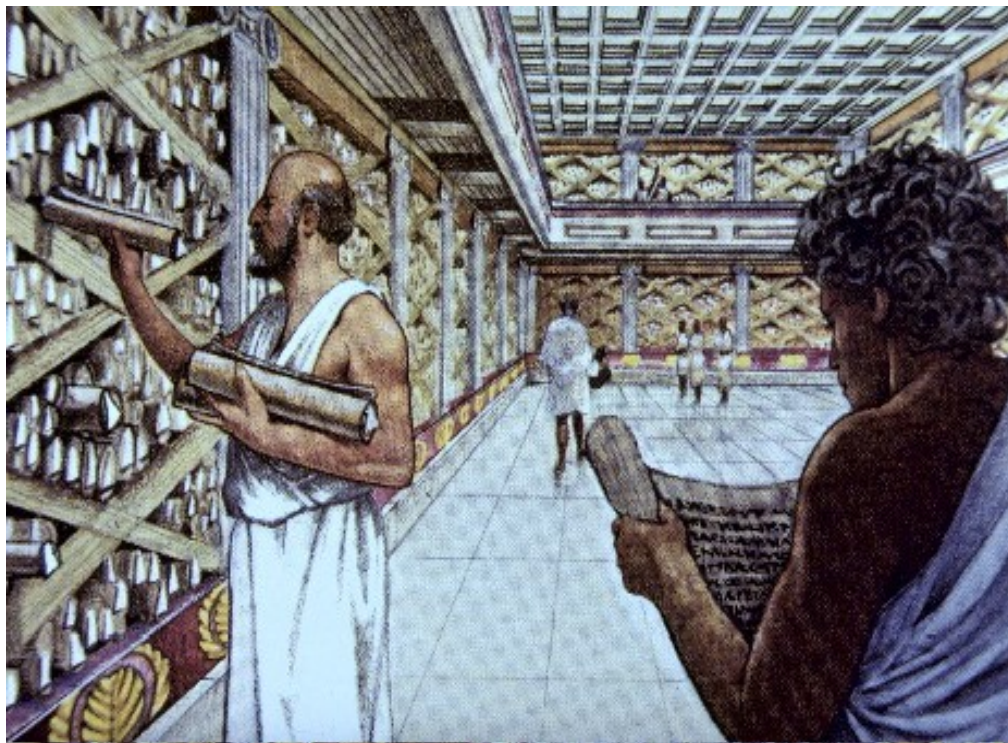
The ancient library is a curious topic. The basic evidence has been collected, long since, but the compilations are neither thoughtful nor up to date. One would think to find a more or less definitive treatment, but the fundamental works on the topic are surprisingly thin.

The only one of published evidence is a 2001 Yale Press book by Lionel Casson which while competent and does not ask how they functioned; and how that use or function differed in differing times, places, and (therefore) cultures about the ancient mediterranean. The evidence for the ancient library is a fascinating if challenging mixture of archaeological evidence, scattered remarks in literary texts, and (mostly very fragmentary) inscriptions. Most of the evidence is difficult to interpret. To collect and evaluate evidence for the library and what we know or think to know about its physical disposition, physical features, logistical circumstances, associated institutions, cultural position in society, and user activities is almost an impossible task since some of them do not even exist. The life of Muslims throughout history was correlated with the establishment of libraries that is when libraries flourish the life of scholars and scientists witness a remarkable progress (Ibn Al-Nafis, Ibn Al-Haytham, Ibn Sina, etc.) thus libraries are not just a tool of activity but rather they represent a depot of intelligence and mental inheritance for all humankind, a researcher who does not grasp the history of libraries and the legacies left by our ancestors would never fully be able to benefit from them. Unlike what some people may believe about the ancient libraries being unable to match the contemporary bookstores, libraries were the meeting place for men of literature, science, cultures, religions, etc.





http://people.duke.edu/~wj25/UC_Web_Site/libraries/syllabus.html



Library of Ashurbanipal

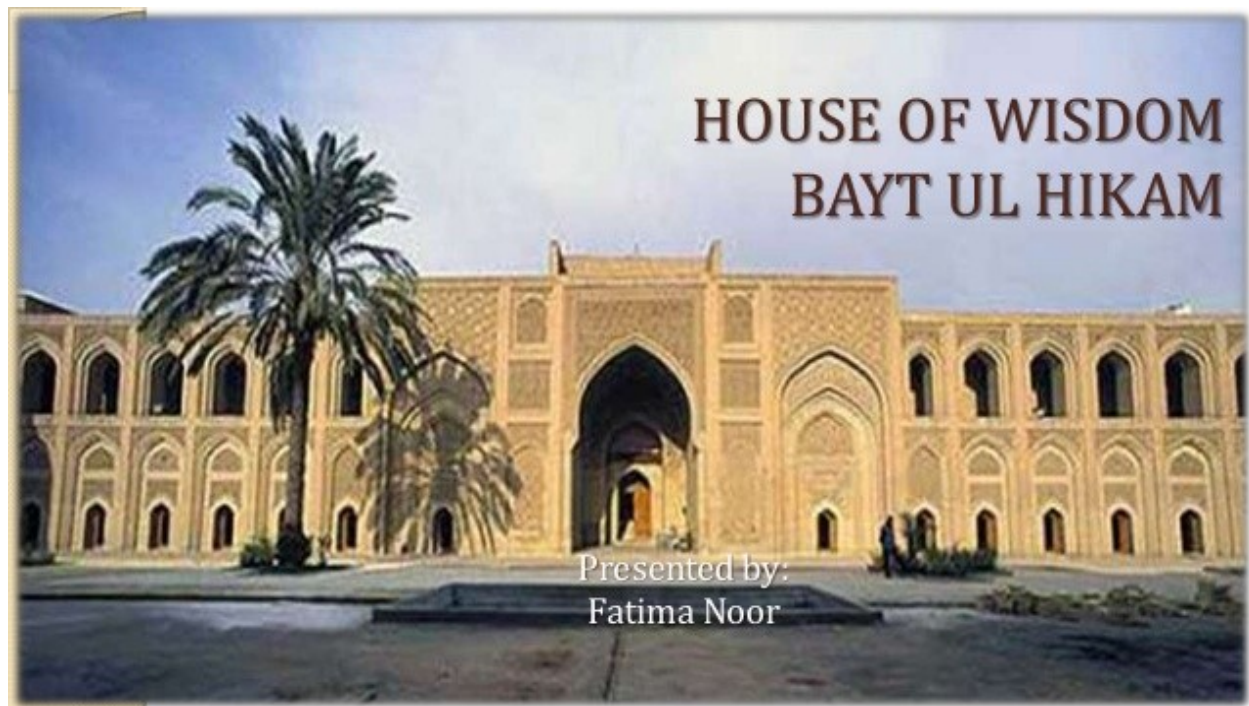
The history of libraries is a history of human thought for libraries have been the stronghold of thoughts preserving them and passing them from generation to generation. We can say that among the first centers of human civilization intellect was the library of the Mesopotamian peninsula a saying that has been proved correct by different Cuneiform script writings. Which means that libraries are not founded only in our modern time, but excavations of archaeologists have backed the idea that libraries as ancient as writing for it was a very crucial invention in human history and a factor in ancient civilizations' development.

The Library of Ashurbanipal

The world's oldest known library was founded sometime in the 7th century B.C. for the “royal contemplation” of the Assyrian ruler Ashurbanipal. Located in Nineveh in modern day Iraq, the site included a trove of some 30,000 cuneiform tablets organized according to subject matter.

Baghdad: The House of Wisdom (Bayt al-Hikmah)

Baghdad 1,200 years ago was the thriving capital of the Muslim civilization. For about 500 years the city boasted the cream of intellectuals and culture. For more than two centuries, it was home to the House of Wisdom, an academy of knowledge that attracted brains from far and wide. From mathematics and astronomy to zoology, the academy was a major centre of research, thought and debate in Muslim Civilization (Sketch: 1001 Inventions).



years. Both empires were exhausted just in time to be conquered by invading Muslim armies that were formed after Mohammed's death in 632.

DARK AGE IN EUROPE lasted approximately 1000 years from ~400 to ~1400 CE. The timeline of European history shows no major advances in science between the ancient Greeks and the European renaissance. Agrarian Economy, Supremacy of The Church Class structure of Europe: Two classes only: Upper Class (Clergy, Lords,) Lower class (Peasants) The language of science was Arabic for that 700 years.

WHAT IS RENISSANCE? Causes of Renaissance:

1. Transfer of Eastern Knowledge and ideals to Europe.
2. Growth of trade between Europe and Middle East.
3. Rise of Trading cities such as Florence, Venice and Pisa.
4. Rise of Middle Class.
5. Destruction by Mongols Mongolian (and world) history changed forever during the rule of Genghis Khan.

Baghdad had been established in 762 by the Abbasid Caliph. al-Mansur capital of the Muslims. And house of wisdom was established after the city was built. By the mid-1200s much of the glamour and importance of Baghdad was gone and army was serving as body guard of caliph. Mongols arrived in 1258 with army of 150,000 soldiers.

The preservation and development of human knowledge was a cherished tradition of Eastern Christians and Persian Zoroastrians. During the 4th through the 7th centuries scholarly work in the Greek and Syrian languages was either newly initiated or carried on from the Hellenistic period. Examples are The Imperial Library of Constantinople → The Library of Alexandria → Later the School of Edessa The renowned hospital and medical academy of Jundishapur libraries included: School of Nisibis. During the 4th through the 7th centuries scholarly work in the Greek and Syrian languages was either newly initiated or carried on from the Hellenistic period.

The House of Wisdom (Bayt Al-Hikmah) was seen as one of the leading libraries in Islamic history that appeared during the Golden age of Islam. It was initiated by the Abbasid dynasty. The research historically analyses the civilizational role of Bayt Al-Hikmah that has remarkably adapted the intellectual richness to serve scholars, scientists and worldwide thinkers. The study highlights the development that marked the house of wisdom in the time of the Abbasids. The main objective of this paper is to explore the impact of the house of wisdom on the Islamic libraries,

moreover it studies the organizational structure of Bayt al-Hikmah along with library divisions and services that it provided for scholars and readers. The paper shall also deal with funding sources. The study found out that, the house of wisdom has had a very organized management system especially in collecting and book cataloguing, the library had a great interest in debating and scientific circles in various topics and subjects. In addition, some new competing libraries have been influenced by the system of the house of wisdom in Egypt and Andalusia. It preserved the knowledge and heritage of the ancient civilizations and it contributed with a remarkable and an unprecedented discoveries that the western civilization have utilized to thrive. The paper shall follow a historical method which comprises some guidelines by which the authors utilize primary sources to conduct a historical account.

After the spread of Islamic faith, people were very attentive to gain knowledge and to participate in the life of thoughts, as a result libraries had emerged to reflect the loftiness of the intellectual life during the second, third until the seventh century AH (after hijrah) when libraries started to vanish. Libraries represented new reality for Muslims and new passion towards the human knowledge and education (Mohammad Ali, 1980).

The Abbasids attained their most sparkling period of intellectual and political life soon after the caliphate was establishment. The Caliphate reached its prime during the time reigns of Harun al-Rashid (149-193 AH) and his son al-Ma'mun (170-217 AH). The Abbasid dynasty acquired a halo in popular imagination becoming the most celebrated in the history of Islam due to the unparalleled intellectual awakening that culminated the al-Ma'mun's patronage. The house of wisdom was one of the leading libraries that distinguished the Abbasid times, it opened its doors for researchers, scholars and leaders. Bayt al-Hikmah was the preferable destination for intellectuals because it offered everything they needed including hall for reading, classrooms, divisions of binding, translating, authoring, map making, etc.

TRANSLATION MOVEMENT: The translation movement, was for two centuries, Greek, Indian works were translated into Arabic. The dynasty prior to the Abbasids, the Umayyad provides no evidence of original science but the Abbasids inherited from the Persians new wealth and power. The Translation Movement was a movement started in the House of Wisdom in Baghdad which translated many Greek classics into Arabic.

These texts not only broadened the horizon of the Arabs for their actual contents, they also provided patterns of formal arrangement and scientific organization. Arabs became acquainted with the so-called Summaria Alexandrinorum (Summary of Galenic writings) and introduced to the Arabs

the concept of humoralism, Which was to dominate all later medical and pharmacological theories Practical advantages in finance, agriculture, engineering, and medicine

FOUNDER The Umayyad Caliph: Harun Al-Rashid (763-809 AD) was the Caliph of the Abbasid Empire Muawiyah I gathered books in Damascus. He was even fonder of learning, and expanded the role of the Bayt al-Hikma. Employed Christian and Persian scholars to translate works into Arabic and to develop new knowledge. Umayyad appropriated paper-making techniques from the Chinese contained Greek and Christian books about medicine, alchemy. Called The House of Wisdom (Bayt al-Hikma) the Institute he founded was a library, translation institute and research center established in Abbasidera Baghdad Iraq. It was a key institution in the Translation Movement and is considered to have been a major intellectual hub during the Islamic Golden Age.. o he set up a library called the Bayt alHikma. In English it is called the House of Wisdom.

The construction was directed by scholars from the House of Wisdom: senior astronomer Yahiya ibn abi Mansur and the younger SANAD IBN ALI AL-ALYAHUDI. It was located in AL-SHAMMASIYYA and was called MAUMTAHAN OBSERVATORY. After the first round of observations of Sun, Moon and the planets, a second observatory on MOUNT QASIOUN, near Damascus, was constructed.

IMPORTANT CENTER OF LEARNING: The Bait became one of the worlds most important centers of learning in its centuries. Its libraries contained the works of Pythagoras, Plato, Aristotle, Hippocrates, Euclid, Plotinus, Galen, Sushruta, Charaka, Aryabhata, Socrates and Brahmagupta. Main activities: included a society of scientists and academics translation department and a library that preserved the knowledge acquired by the Abbasids over the centuries. astronomical observatories and other major experimental endeavors. the House of Wisdom was much more than a library, and a considerable amount of original scientific and philosophical work was produced by scholars and intellectuals related to it.. The Translation Movement was a movement started in the House of Wisdom in Baghdad which translated many Greek classics into Arabic. The dynasty prior to the Abbasids, the Umayyad provides no evidence of original science but the Abbasids inherited from the Persians new wealth and power. The translation movement, was for two centuries, Greek, Indian, and Persian works were translated into Arabic.

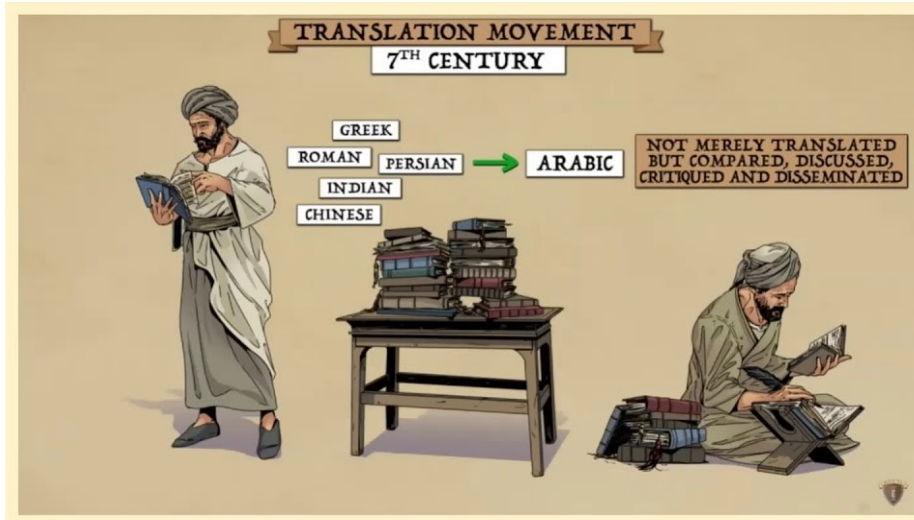
STOP of TRANSLATION MOVEMENT Stopped in the second half of the 10th century They were no longer required. All the great works had been translated, retranslated, studied and commented on. Greek science was replaced by new Arabic texts. Three important Greek texts which were available in Arabic translations by the middle of the 9th century CE

Dioscorides 1st century CE Properties Medicinal Drugs Medical Matters by Mixing Galen 2nd century CE Composition of Galen.. These texts not only broadened the horizon of the Arabs for their actual contents, they also provided patterns of formal arrangement and scientific organization. Arabs became acquainted with the so-called Summaria Alexandrinorum Summary of Galenic writings introduced to the Arabs the concept of humoralism, Which was to dominate all later medical and pharmacological theories Practical advantages in finance, agriculture, engineering, and medicine.

IMPACTS ON WORLD: library which helped to preserved the knowledge acquired by the Abbasids over the centuries. having astronomical observatories and other major experimental endeavors which helped to work on many new projects . great amount of original scientific and philosophical work was produced by scholars . during the dark age of Europe this library books played a great role due to which later on renaissance started.

ECONOMIC AND POLITICAL SUPPORT: Al-Mansur provided economic and political support to the intellectuals working there. He invited scholars from India and other places to share their knowledge of mathematics and astronomy with the young Abbasid court . Scholars from the Bayt al-Hikma usually doubled as engineers and architects. They kept accurate official calendars and were public servants. They were also frequently medics and consultants . Translating books to Arabic and preserving them. Thus it grew on to become much more than a library, and a considerable amount of original scientific and philosophical work was produced by scholars and intellectuals related to it; including astronomical observatories and other major experimental endeavors.

Main activities: The House was one of the world's most important centers of learning in its centuries. It has a Translation Department and a library that preserved the knowledge acquired by the Abbasids over the centuries. There was included a society of scientists and academics. Its libraries contained the works of Pythagoras, Plato, Aristotle, Hippocrates, Euclid, Plotinus, Galen, Sushruta, Charaka, Aryabhata, Socrates and Brahmagupta.



Within the Bayt were many areas serving different purposes. The areas were used at a location for philosophical discussion when scholars travelled to the Bayt to teach, debate, and discuss their findings. A school was established in one of the buildings, many lecturing there as well as writing most of his books and collecting books for the first world class library in history. The Caliph had always been a book collector and the library grew with the books sent to him, he also sent plant and animal species that allows as gifts to other sovereigns. The library attracted many scholars to his school, and they become teachers and conducted research. Students were able to study any subject available at the time. His school was compared to a factory that made professionals of any kind.

One can compare the work with that of the Library at Alexandria which in turn was inspired by Aristotle's Library in Athens. The library of Aristotle is the first private library concerning which there is considerable discussion among early commentators. Writing more than 300 years after Aristotle's death, in the first decades of the first century CE, the geographer Strabo provided one of the most detailed early accounts in his *Geographia* XIII, 1, 54-55, stating, among other things that Aristotle was "the first man, so far as I know, to have collected books and to have taught the kings in Egypt how to arrange a library." Strabo's account in English translation is below. The Egyptian kings were referred to were probably the Ptolemies in Alexandria. Aristotle's main focus as a teacher was cooperative research, an idea which he founded through his natural history work and systematic collection of philosophical works to contribute to his library. His students were assigned historical or scientific research projects as part of their studies. The school was also student run. The students elected a new student administrator to work with the school leadership every ten days, allowing all the students to become involved in turn. Before returning to Athens, Aristotle had been the tutor of Alexander of Macedonia, who became the great conqueror Alexander the Great.

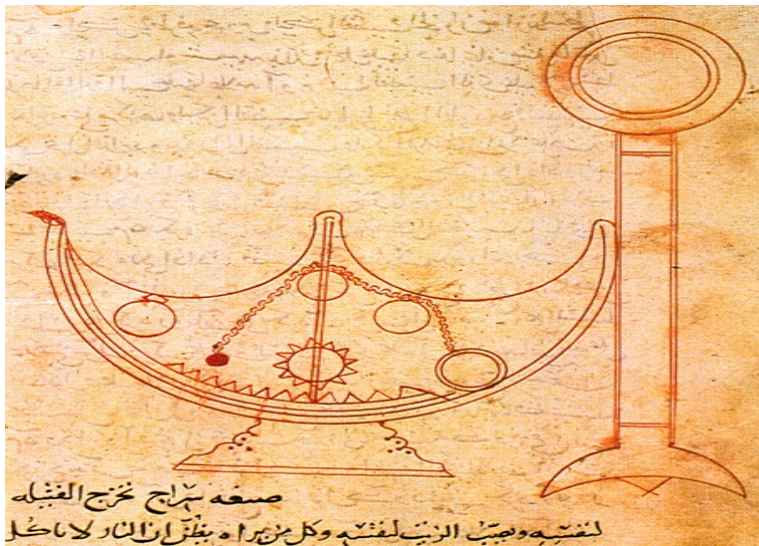
Throughout his conquests of various regions, Alexander collected plant and animal specimens for Aristotle's research, allowing Aristotle to develop the first zoo and botanical garden in existence. It is also suspected that Alexander donated what would be the equivalent of more than 4 million dollars to the Lyceum. In 322 BCE, Aristotle was forced to flee Athens with his family when the political leadership reacted against the Macedonians again and his previously published works supporting Macedonian rule left him a target. He passed on his Lyceum to Theophrastus and died later that year in Chalcis, near his hometown.

Some of the Scholars who worked at the Bait were

Banu Musa brothers -**Mohammad Musa and his brothers Ahmad and Hassan** were remarkable engineers. ere three ninth-century Persianscholars who lived and worked in Baghdad at the House of Wisdom.. They are known for their Book of Ingenious Devices on automata (automatic machines) and mechanical devices. Another important work of theirs is the *Book on the Measurement of Plane and Spherical Figures*, a foundational work on geometry that was frequently quoted by both Islamic and European mathematicians.

The Banu Musa worked in astronomical observatories established in Baghdad by the Abbasid Caliph al-Ma'mun as well as doing research in the House of Wisdom. They also participated in a 9th-century expedition to make geodesic measurements to determine the length of a degree.

Banu Musa Brothers are credited with inventing the first music sequencer which was the earliest type of programmable machine.



An illustration of a self-trimming lamp from Ahmad Musa's *On Mechanical Devices*, written in Arabic.

Christopher Columbus used al-Farghani's estimate for the Earth's circumference as the basis for his voyages to America. However, Columbus mistook al-Farghani's 7091-foot Arabic mile to be a 4856-foot

Roman mile. This error caused him to underestimate the Earth's circumference, leading him to sail to North America while he believed that he was taking a shortcut to Asia.

The simplest nilometer design is a vertical column submerged in the waters of the river, with marked intervals indicating the depth of the water. One that follows this simple design, albeit housed in an elaborate and ornate stone structure, can still be seen on the island of Rhoda in central Cairo (30.0069°N 31.2250°E). This nilometer visible today dates as far back as AD 861, when the Abbasid caliph al-Mutawakkil ordered its construction, overseen by the astronomer Alfraganus. It was built on a site occupied by an earlier specimen which was seen by the Syrian Orthodox patriarch Dionysius of Tel Mahre in 830.

Abū al-‘Abbās Aḥmad ibn Muḥammad ibn Kathīr al-

Farghānī (Arabic: أبو العباس أحمد بن محمد بن كثير الفرغاني; 800/805–870), also known as **Alfraganus** in the West, was an astronomer in the Abbasid court in Baghdad, and one of the most famous astronomers in the 9th century. Al-Farghani composed several works on astronomy and astronomical equipment that were widely distributed in Arabic and Latin and were influential to many scientists. His best known work, *Kitāb fī Jawāmi‘ ‘Ilm al-Nujūmi* (whose name translates to *Elements of astronomy on the celestial motions*), was an extensive summary of Ptolemy's *Almagest* containing revised experimental data. Among those influenced by al-Farghani's works were Copernicus, who is said to have used al-Farghani's calculation of the diameter of the Earth in his own calculations, and Christopher Columbus, who used the same calculation for his voyages to America. In addition to making substantial contributions to astronomy, al-Farghani also worked as an engineer, supervising construction projects on rivers in Cairo, Egypt. The lunar crater Alfraganus is named after him. AL-FARGHANI In the 15th century.



Harun Al Rashid



Al- Fargānī, Aḥmad ibn Muḥammad. RIGHT Statute in Cairo.Nilometer BELOW



In the 9th century the physician-translator Hunayn ibn Ishaq wrote monographs on ophthalmology, including the influential *Ten Treatises on the Eye* that showed considerable advancement in knowledge over that in the Greco-Roman treatises preserved today. One of the most highly regarded of ophthalmological manuals was that covering 130 eye ailments written by `Ali ibn `Isa al-Kahhal (d. 1010/400 H) who practiced in Baghdad. Other scholars also wrote on smallpox, infections and surgery. these works, later become standard textbooks of medicine in the Renaissance.

He was placed in charge of the translation work by the caliph. In his lifetime, Ishaq translated 116 writings, including works by Plato and Aristotle, into Syriac and Arabic, known in the West as Geber the Alchemist success in expanding the science of practical metallurgy. His work translated into Latin in the 12th century. 3,000 written works that have been attributed to Jabir. Some words in chemistry have Arabic roots, for example alcohol, alkali, and borax., Greek chymeia becomes Arabic al-Kimiya then in Latin alchemia which, dropping the al, becomes chemia the root word for chemistry.



Commentary on
the *Mujiz* or *Concise Book* of Ibn al-Nafis, called *The Key to the Mujiz* and composed in Arabic by al-Aqsara'i, who died in 1370 (771H). The copy was completed in October of 1407 (Jumada I 810 H) and is one of the earliest preserved copies. NLM MS A67, fol. 167b showing a schematic diagram of the visual system.

Al-Khwarizmi (780-850)CE worked as an astronomer and mathematician. Inventor of the eponymous algorithm and introduced Hindu decimal numerals, and algebra to Arabic Empire. He worked in al-Ma'mun's House of Wisdom and is famous for his contributions to the development of algebra.

INVENTION OF ZERO One digression is on the invention of zero, including its etymology. Arabic *Sifre* becoming Latin *Cifra*, then in English *cipher*, but the word was not used for zero. *Cipher* was first used for any Hindu-Arabic numeral, and only later for any secret symbol. Al-Uqlidisi was the first to use decimal fractions. Al-Khwarizmi and Omar Khayyam (1048-1131 CE) A Persian poet but also a mathematician worked on cubic equations. Khayyam's solutions were accurate to six decimal places, and because of this accuracy he was able to create a calendar that was correct to one day in 3,330 years. Ishaq al-Kindi (800-873 CE) the first philosopher of Islam known in the West as *Alkindus*. He applied Aristotelian logic and philosophy to the Muslim religion, the first to make the distinction between science and superstition (while still accepting astrology). He also worked on music theory.

Objectives and contributions of the present research

There have been many studies on history of Islamic libraries (Houses of Wisdom) that evolved thanks to Baghdad's house of wisdom. However there was no research that could show the impact of the House of Wisdom (Bayt al-Hikmah) in Baghdad on formation of other new Islamic libraries. The current study analyses the organizational structure of Bayt al-Hikmah al-Baghdad and its divisions and services that it provided for scholars and readers. The paper shall also deal with the funding sources and governmental endowments that were commonly known at the time of the Abbasids. It also shows the intellectual as well as managerial impacts that Baghdad's House of Wisdom (Bayt al-Hikmah) had on the spread of new Islamic libraries within the Muslim peninsula.

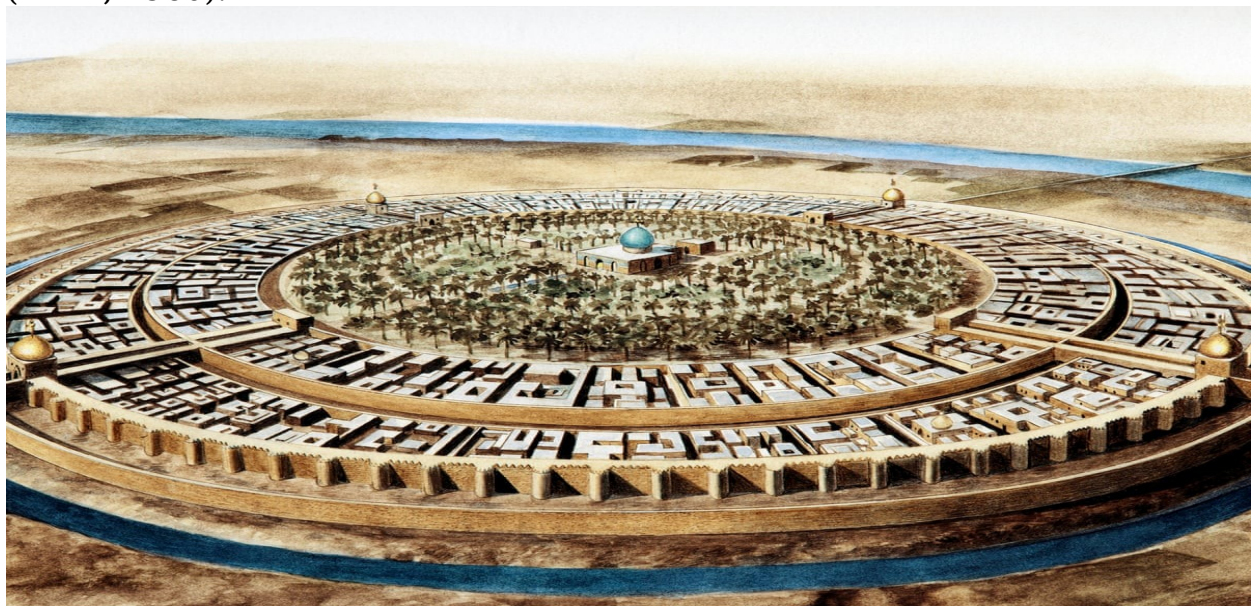
The current conducted research has a very original contribution since previous studies on the House of wisdom have only dealt with historical backgrounds of some libraries. The paper contributes in highlighting the extent of creativity for authors that had flourished due to the House of wisdom in which book authoring took a very progressive trend. It also adds new historical and factual contribution to studies on the administrative and managerial aspects and the way they function in the House of Wisdom (Bayt al-Hikmah) that was later assimilated by several libraries in the Muslim world.

There has been different opinions on the identity of the founder of the Abbasids' House of Wisdom. Some records say that the founder of Bayt al-Hikmah was Abu Ja'far al-Mansur (95-135 AH) who collected books on medicines, astronomy, engineering and literatures that have been translated in his reign, moreover some other publications on Hadith (prophetic tradition), history, Qura'nic sciences, al-Mansur has gathered all collections of books in a big room that was the nucleus of the house of wisdom (al-Diyaji, 1975). He was the first caliph who motivated Muslims to study sciences and develop them, he also advised them to translate books from Persian, Greek, and Indian languages. Among the books that al-Mansur initiated their translations were the book of Al-Sind Hind a book on mathematics and a huge collection of Aristotle, Euclid and of Claudius Ptolemy writings. These collections along with the authored publications on Prophetic tradition (Hadith), literature, and history were gathered in one of palace's big closet that later on was developed becoming the pillar of the house of wisdom (al-Qafti, 1903), we agree upon the above mentioned opinion that Bayt al-Hikmah was founded in the time of the Caliph al-Mansur.

Scholars of a second opinion saw that the house of wisdom was founded in the time of Harun al-Rashid (149-193 AH) as a result of the civilizational and intellectual progress that characterized his caliphate especially during

the era of translation movement whose aim was to enrich the Muslim thought with different knowledge and sciences led by a number of Arabs, Persians and Syriac scholars and scientists (Ma'ruf, 1969). When al-Rashid army opened Ankara he personally took hold of the expedition to preserve the libraries there and to transport every valuable collection of books to the centre of the Abbasid Caliphate Baghdad specifically to the house of wisdom. Ibn al-Nadim supported this opinion when he mentioned in his book *Al-Fihrist* "Abu Sahl al-Fadl Ibn Nubakht was present around the closet (book storing place) of Al-Rashid" (Ibn al-Nadim, 1964, p.255). Also the saying of Yaqut al-Hamawi who could confirm that the house of wisdom existed in the time of Al-Rashid "Al-Warraaq used to copy and reproduce in Bayt al-Hikmah during the times of Al-Rashid and Al-Ma'mun", this would argue for the presence of the house of wisdom at the reign of Al-Rashid. (Al-Hamawi, 1966, p.66)

The third opinion argue that the Abbasids' house of wisdom was founded in the time of Al-Ma'mun the caliph (170-217 AH). De Lacy O'Leary (1872-1957 AD) who is a British orientalist has supported the idea that Bayt al-Hikmah was constructed by Al-Ma'mun when he says "the caliph Al-Ma'mun has founded a school he named Bayt al-Hikmah, and he made it an institution that embraces the translation of the Greek books" (O'Leary: 1973, p.327), the same opinion appears in Max Meyerhof and William James Durant writings. It possible to say that the house of wisdom existed long before Al-Ma'mun but it sparkled during his reign for he was a man of literature, a scientist and a lover of scholars to whom he had given major interest and support for their research, debates and authoring books. (Amin, 1960).



The round city of Baghdad in the 10th century, the peak of the Abbasid Caliphate. Illustration: Jean Soutif/Science Photo Library

The Naming of House of Wisdom (Bayt al-Hikmah)

When the Caliphs have had a huge collection of books and a considerable number of translations, maps, manuscripts, etc. they had to construct an appropriate place for these collections, historians have a consent that the caliphs' most desirable location for the library was the palace itself.

Bayt al-Hikmah of the Abbasids was given different names, according to some sources it was called closet of wisdom a name that was given by historians like Ibn al-Nadim who often used the Bayt al-Hikmah to refer to the same store, another scholars like Ibn Sa'id al-Andalusi and al-Qalaqshandi utilized the term closet of wisdom to refer to the house of wisdom. Haji Khalifa on the other hand gives a different name known as Dar al-Hikmah. The most interesting thing about the naming of house of wisdom is that all labels signify the same meaning that Bayt al-Hikmah was the place of all knowledge and wisdom to be found.

The Location and its Architectural Design

There has not been enough information about the place of house of wisdom, references have spoken about Bayt al-Hikmah fairly but they have not said much about its location. According to the norms the closet of books should be part of the palace just like the Cordoba Place and the palace of the Fatimid caliph Al-'Aziz Billah (344-386 AH), and palaces of the kings of India and Persia (Ibn Al-Abaar, 1963).

It is believed that the house of wisdom was part of the palace during the time of Al-Rashid (149-193 AH), it was a separate house (Dar) within the palace of caliphs, and some historians said that it was an attached large room from the outside. However when the number of translated and authored books has increased in the reign of Al-Ma'mun (170-218 AD) the house became a large building with a big number of halls and room for translators, authors, scientists, and readers. As a result the library was relocated to Al Rusafa that was the half of Baghdad on the eastern side of the river Tigris and a new Astronomical Observatory has been appended to the new relocated library. (Amin, 1963).

As for the house of wisdom's architecture. Mahmud Ahmad Derwich has found a suitable architectural planning for Bayt al-Hikmah through his studies on the golden castle constructed by Al-Mansur. The house of wisdom composed of a yard surrounded by halls of two floors from its four sides, it was headed by a penthouse on a row of pillars. In the middle of every side among the four sides of the yard there were halls topped by semi-

cylindrical dome of 25 cubit. The main hall leads to a square shape room above it there was a big dome with 80 cubit high, the main hall also has a statue of knight holding a spear that spins with the spear. The ground floor contained a number of divisions for book closets and sections for translating, authoring, copying, binding, reading as well as studying in all subjects of knowledge, sciences and literature, as for the upper floor it was devoted to residents from authors, translators, students and employees. (Ghanima, 1953).

Organizational Chart of the House of Wisdom

Bayt al-Hikmah had its own system but sources have not stated a precise description that bind the system that the house of wisdom used to function.

Information given help us infer that the library of Bayt al-Hikmah was an institution like other institutions of that time, for there have existed terms given to specific people such as Sahib bayt al-hikmah. The term sahib refers to the highest ranking officials of the state, for instance, Sahib al-Bimartsan that stands for the director of the hospital, Sahib al-Arsad or director of astronomical observatories, sahib al-Diwan or director of the ministry cabinet...etc. (Al-'ish: 1991). The responsible for the house of wisdom was called al-Khazin who administrated its affairs, the importance of the job requires one of the best scholars or intellectuals who had mastered various sciences and showed a distinguished cleverness. (Khalifa Sha'ban, 1997).

After the library was formed and loaded with a huge number of translated and authored books, manuscripts, maps and other books from the Greek, Persian and Indian civilizations, as a result the Abbasids build a big premise with many rooms and halls that contained all the assembled literature that was divided into sections and groups in which every section or group was dedicated to a specific science collection. Each collection was stored in a partitioned shelf. (Ma'ruf, 1983). Books inside the house of wisdom were indexed accordingly the same way as in the modern libraries when there existed a clear cataloguing method of book titles and manuscripts. Some scholars have made their own index for their writings for instance, Al-Bayruni has listed and indexed his own books and books of Mohammad Ibn Zakariyah Al-Razi. Bayt al-Hikmah has had a variety of sections that included: depositing books, book lending, Copying and binding, maps and manuscripts, and finally the section of translating and book authoring. We shall explore now the library sections in details within the coming pages:

1. The depositing of books: This process during the times of Bayt al-Hikmah was labelled al-Takhlid, it was accomplished in different ways. Authored books were of great value for the library and for the author who had a great

honour if his books are deposited in the house of wisdom, translated books were also of no lesser value and they composed the library's collection, finally, sometimes al-Takhlid is through purchasing books, for example the caliph al-Ma'mun had assigned a group to purchase books from Roman and Greek libraries and add them to his closet of books. Dr Hasan Ahmad Mahmud has commented on the caliphs efforts in purchase process saying that "the Abbasid state held deals to purchase books and they paid high prices for them especially in the time of al-Ma'mun who devoted himself to knowledge and fortune to reach out the intellectual treasury in foreign libraries of Constantinople and Cyprus" (Majid, 2010, p.163).

2. Book lending: As it has been stated earlier that the house contained a considerable number of rooms and halls. One of the halls was devoted for readers that had some servant who provide help, comfort and other sort of services for those who frequently came to the library. There had been also an external but conditional lending of, in which books were lent for people who value them therefore they have to make a pledge and pay a refundable cost for the lent book in case of damage or loss in order to preserve all book collections within the library.

3. Copying and binding: this section was related to the translation movement, once the translator finishes the assigned job, the product will be transferred to a writer who were having a distinguished hand writing style. The caliph al-Ma'mun himself was the one who nominated the writers and the writing style. When the written product is ready it would be devolved to other people for binding and decorating. The final copy would be distributed also in other libraries outside of Baghdad to the Tunisian House of Wisdom, and Cairo's Dar al-Hikmah. (Al-Mas'udi, 1968).

4. Maps and manuscripts: the library has preserved a big number of geographical maps manuscripts, and astronomical photographs. Bayt al-Hikmah had kept many resources for geographers and astronomers who could benefit from these collections, for instance al-Mas'udi had viewed a photograph named al-Sura al-Ma'muniyyah that has been produced by a number of scholars in the time of al-Ma'mun, it demonstrates the whole world with its stars, planets, land, oceans and urban places of cities and nations. Furthermore there existed another manuscript that pictures the earth with its seas, mountains, valleys...etc. (Ibn al-Nadim, 2002).

5. Translation and authoring: the Abbasid caliphs have had a great concern in translating and transmitting the legacy of the ancient nations to the Arabic language in order to avail from it and to contribute in the new procedure of the ancient knowledge innovation. This had been one of the main leading tasks and activities for the house of wisdom.

Translation movement have focused on some main languages that include: Greek, Indian, Syriac, and Persian languages. This section was subdivided into different assembly based on the subjects of translation and each was assigned to one of the eminent scholars at that time, for instance, the assembly of mathematics and engineering was assigned to Abu Ja'far Ibn Musa Ibn Shakir (183-258 AH) and his brothers, assembly of stars' movement and philosophy were assigned to Ya'qub al-Kindi (184-259 AH) and to Ibn Farkhan al-Tabari (145-200 AH), and the body of Medicine that was designated to Ibn Ishaq al-Harani (Al-Qifti, 2005).

The library was not only a place of translating the ancient heritage but it was also the institution when scholars and scientists authored their own books on literature, history, philosophy, linguistics, medicines...etc. Harun al-Rashid (149-193 AH) had appointed Ibn Qarib al-Asma'l (121-216 AH) to author a book on history, the latter had finished his first assigned task in the house of wisdom itself. Abu Zakariyya al-Farra' (144-206 AH) had also authored one of the earliest publications on Arabic Grammar. In addition to that, Bayt al-Hikmah represented the educational institution for the Abbasids who spent their fortune to appoint scholars and lecturers to teach philosophy, astronomy, history, geography, mathematics, medical sciences, and music...etc. the educational environment in the library had given the opportunity to student to pursue their research on higher education thus, the House of wisdom had become the first Islamic university in history of Islam. (Amin, 1963).

The Funding Resources

Historical sources have pointed out little knowledge on the extent of financial finding for the house of wisdom, but they almost all agreed that there used to be a limitless support on the funding issue when a large sums of money and gold were spent to fund the library. Consequently it helps us infer that there had been a special budget for the house of wisdom to secure the wages of all its employees including: translators, authors, binders, lecturers, debaters, servants...etc. the budget also compromised other facilities such as habitation, food, book, pens and papers' purchase and others.

Al-Ma'mun the caliph had allocated a steady resources or endowments (Awqaf) to be spent on the library, in so doing the caliph did not want to expose this institution to any financial shakings or crisis for he knew the harm it could occur to education and to scientific progress in such hard times therefore he secured a lasting funding from caliphs and ministers (Muntasir, 1971).

As for the disbursed money on the house of wisdom in the time of al-Ma'mun it estimated nearly two hundred thousand Dinars (Durant, 1964), some sources have mentioned that the same caliph had offered to Hunayn ibn Ishaq (194-260 AH) - a famous translator- the weight of what he translated of books in gold as a wage for the latter's contribution in enriching the house of wisdom with the ancient knowledge translated into Arabic. Ibn al-Nadim has also stated in his book *Al-Firist* that some translators like Ibn al-A'sam and Thabit Ibn Qurra (221-288 AH) have a monthly allowance that exceeded five hundred Dinars (Ibn al-Nadim, 2002).



Imaginary drawing of the "House of Wisdom" library (photo: 1001 Inventions).

Impact of House of Wisdom on Islamic Libraries

The house of wisdom had crucial role to play in linking the Islamic world fronts in east and west and in introducing the heritage in its perfect form to all Muslims in order to preserve it from loss and deterioration. As a result, the library had gained a great fame in the Islamic world for it was the first scientific and educational library that assembled scientists, scholars and translators to study and research. The house of wisdom had become an exemplary model for other Caliphs and princes who tried to simulate and to found new libraries and houses of wisdom that can compete with the one in Baghdad, this contest had attained an intellectual and scientific advancements in every sphere in the Islamic world. Here are some libraries that came to exist because of emulating the example of house of wisdom:

1. The Aghlabids House of Wisdom: found by Amir Ibrahim Ibn Mohammad al-Aghlabi (261-289 AH) in Raqqada. Ibrahim was an admirer of knowledge and scholars for he knew the value of education and knowledge and their role in the progress of societies. He had strived to make his library reach

out the fame of Baghdad library, wherefore he brought to Aghlabids library a number of precious manuscripts, books and scientific tools. The prince has two annual expeditions to Baghdad to renew his sovereignty to the Abbasid caliphate in doing so he assigned a group of scholars to borrow and purchase books and literary works from Baghdad that they cannot be found elsewhere.

2. The Andalusian House of Wisdom: it was found by the Umayyad caliph in Andalusia al-Hakam al-Mustansir (302-366 AH) who was often described as the master or scholar (A'lim) of the Umayyad due to his vast knowledge in various sciences categories, he collected the greatest number of books that nobody had collected before (Levi-Provencal: 1994). Therefore he decided to construct a huge building which he called the Dar al-Hikmah (house of wisdom) that followed the example of the Baghdad library in its artistic and organizational features. During the reign of al-Mustansir Cordoba became one of the eminent centres of human civilization characterized by a remarkable progress in sciences, arts, and architecture.

3. Cairo's House of Wisdom: the beginning of its founding is related to the time of the Fatimid al-Aziz billah (365-386 AH) who also was a lover of books and he attentively collected a great number of them saying that he would have a hold of a copy of every book whether authored or translated in the house of wisdom in Baghdad. The true founder of the Cairo's Dar Al-Hikmah was al-Hakim bi-Amr Allah (386-411 AH) who always assembled scholars from all arts and sciences and he prepared for them everything they needed in order to facilitate for them searching and authoring. He also gifted students and readers with different presents and supply them with free ink and papers.

A huge number of new libraries had emerged in the Arab peninsula and in other territories, however it was clear that all newfound libraries have been trying to compete with the Abbasids House of Wisdom in Baghdad. They tried to simulate, innovate and challenge the reputation that the House of wisdom had in the Muslim world.

The libraries that have flourished following the example of the house of wisdom's have had their doors open to scholars from all over the world. Libraries have had almost the same kind of translated books that were culled from scholarships of dozen languages. The house wisdom was a center of knowledge and education, it was a rival of the Constantinople's if it did not exceed it. It was the model for other libraries and similar institutions throughout the soils of Islamic civilization.

The example of the house of wisdom was remarkably followed and its influence appeared when other many public libraries have emerged all the way from Bokhara and Merv, in the heart of Asia, on the route to China through Basra and Damascus, Algiers and Cairo. The famous geographer Yaqut al-Hamawi who had visited Merv in the late 1220s, found more than twelve libraries there opened for public. And the same as the house of wisdom in Baghdad functioned, ten libraries were through endowments (awqaf). He interestingly expressed his admiration for about the lending policies of the libraries there, he noted that libraries in Merv were being liberal enough to lend him more than 200 volumes he could use in his room at the same time.

Libraries of The Nizamiyyah School were somewhat similar to the House of Wisdom (Bayt al-Hikmah) for the former had had many facilities to offer for students, including student's scholarships and endowment professorship. The Nizamiyyah School libraries and Cairo libraries were reported to have their own binders, administrators, librarians and even guards, they have shared almost all supported by endowments from governments, caliphs and kings.

One of the most remarkable impacts that the House of Wisdom had had on the other libraries is that they have helped scholars and authors creativity to flourish. For instance hundreds of volumes were being written in the time of the Fatimid's time. The high authoring process was one of the characteristics of the Egyptian renaissance before the coming of the Mongols and the crusaders. The influence of the House of Wisdom went beyond the Arab peninsula when it reached European soils particularly Spain. Cordoba, Seville and Toledo had a great number of libraries basically because many agents had been sent across the countries and seas to buy books and bring them to the Royal library in Cordoba in which it is believed to have contained more than 400.000 volumes, and amazingly it gave employment to over five hundred people. Ultimately Cordoba had become one of the greatest book markets in the western world during the 10th century AD.

The House of Wisdom (Bayt al-Hikmah) had influenced not only similar public libraries, but a new form of libraries that were for personal use and for show. They were called private libraries which sometimes reached a considerable size. One writer has estimated that some private libraries were bigger and richer than public or private, libraries in Western Europe. However it was not the norm for the well-to-do people to leave their libraries open to public or to endow them for users.

Employees in the House of Wisdom in Baghdad were people of higher intellectual abilities, the same was emulated in every public library across the Muslim world. They often had a staff list that reach sometimes hundreds of copyists, illuminators, binders, translators, and authors. Those whom we can consider librarians were not randomly chosen but they usually were scholars, poets, multilingual and writers who on the other side were well paid by caliphs, rulers or nobles.

Many of the Islamic libraries included also not halls for reading and book storing, but they also they contained rooms for meetings and other rooms for discussions and debating that were help sometimes between different libraries and different scholars which implies the competition among libraries for scientific achievements, reputation and glory of the library itself. The Muslim libraries have played a major role in translating and transmitting works of Greek, Persian, Indian and Assyrian physicians and philosophers, works that later became the basic textbooks in European schools of Bologna, Naples and Paris. It is likely that without the Muslim libraries, modern Europe's scientific and intellectual progress would have been remarkably inhibited.

The End of the House of Wisdom Library

After the invasion of Baghdad by the Mongols in (656 AH-1258 AD) they wrecked the library's private and public closets of books, manuscripts, maps, observatories...etc. they burned majority of the collections whilst others were thrown into the Tigris river, some say that the Mongols have built their barns using books instead of clay.

Hulagu has ruined almost all books that have been translated or authored by distinguished scholars and scientists, the works that were used to spread culture and knowledge and wisdom among the Muslims and non-Muslims were gone into dust. As a result the world witnessed the fall of one the preserving libraries of human intellect and human civilization of that time which has had a calamitous impact on the Islamic civilizational heritage.

The legacy of the house of wisdom library was wasted and the west did not find except Arabic sources to obtain the heritage of ancient human civilizations. The invasion of the Mongols and the destruction of the library marked the fall of Baghdad and ultimately the collapse of the Abbasid Caliphate that had left the Muslim world in crisis in the years to come.

Conclusion

The Abbasid Dynasty had much to offer for the human civilization of intellectual and scientific progress. Caliphs were giving the translation movement, transmissions, authoring and intellectual achievements a very high level of respect and support that represented key factors to getting hold of the Hellenistic, Indian, and Persian knowledge and wisdom.

The House of Wisdom has played a distinguished role in the history of the Middle Ages for it was a bridge that transmitted the ancient civilizations including the Islamic one to the west, as it was the departure of modern sciences. Historians have a major consent that thanks to the house of wisdom and other similar schools and libraries, the continuity of human civilization was preserved after the fall of Greek and Roman civilizations. It was the leading library or in other words a leading Islamic university that the Abbasid age required. The paper has explored the impact of the house of wisdom on the Islamic libraries that came to existence as a simulating process of the Baghdad's library, moreover it studied the organizational structure of Bayt al-Hikmah along with library divisions, sections and services that it provided for scholars and readers.

The house of wisdom has had a very organized administration and affair management system. In addition, new competing libraries have been influenced by the system of the house of wisdom in Baghdad which resulted in the emergence of newfound libraries in Egypt, Maghreb and Andalusia. The Abbasid library had preserved the knowledge and heritage of the ancient civilizations and it passed them to the west with a remarkable contributions, the latter has utilized some of the Abbasid period unprecedented discoveries to flourish and modernize.



THE PROPOSED AL HAZAR LIBRARY OF CAIRO, EGYPT

Chapter 2

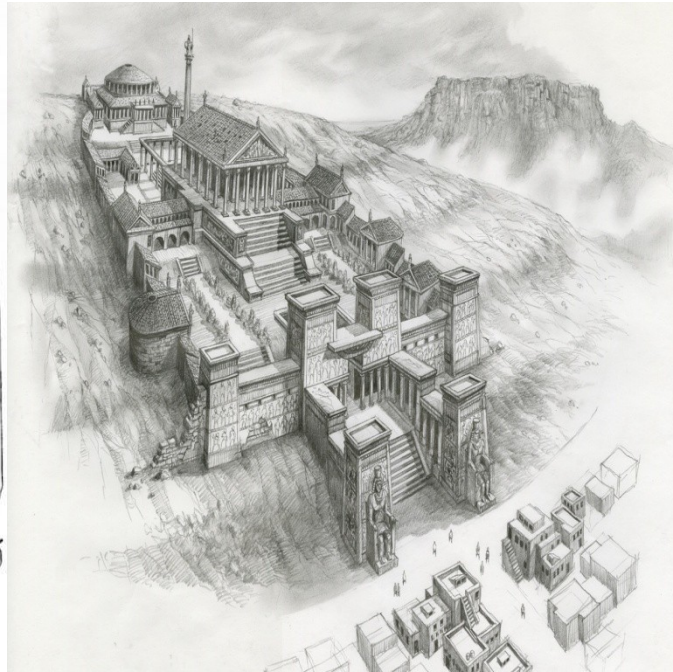
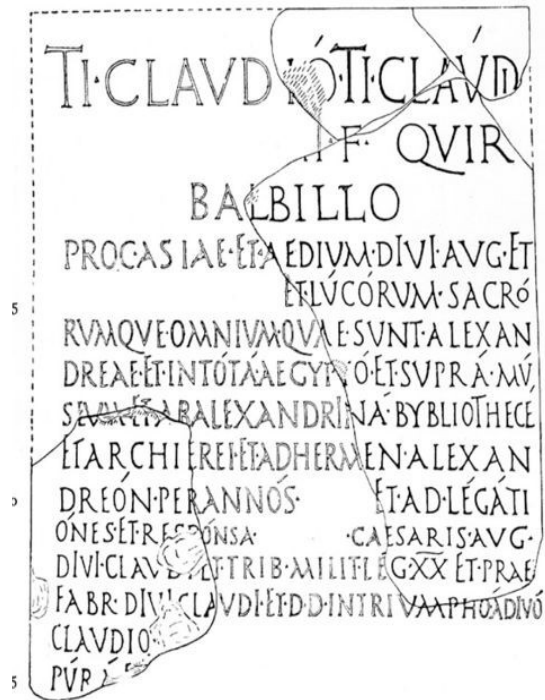
Knowledge in the Ancient World

Historically, library science has also included archival science. This includes how information resources are organized to serve the needs of selected user groups, how people interact with classification systems and technology, how information is acquired, evaluated and applied by people in and outside libraries as well as cross-culturally, how people are trained and educated for careers in libraries, the ethics that guide library service and

organization, the legal status of libraries and information resources, and the applied science of computer technology used in documentation and records management. Library science (often termed library studies, bibliothecography, library economy, and informatics) is an interdisciplinary or multidisciplinary field that applies the practices, perspectives, and tools of management, information technology, education, and other areas to libraries; the collection, organization, preservation, and dissemination of information resources; and the political economy of information. Martin Schrettinger, a Bavarian librarian, coined the discipline within his work (1808–1828) *Versuch eines vollständigen Lehrbuchs der Bibliothek-Wissenschaft oder Anleitung zur vollkommenen Geschäftsführung eines Bibliothekars*. Rather than classifying information based on nature-oriented elements, as was previously done in his Bavarian library, Schrettinger organized books in alphabetical order. The first American school for library science was founded by Melvil Dewey at Columbia University in 1887.

The earliest text on library operations, *Advice on Establishing a Library* was published in 1627 by French librarian and scholar Gabriel Naudé. Naudé wrote prolifically, producing works on many subjects including politics, religion, history, and the supernatural. He put into practice all the ideas put forth in *Advice* when given the opportunity to build and maintain the library of Cardinal Jules Mazarin.

The history of libraries began with the first efforts to organize collections of documents. Topics of interest include accessibility of the collection, acquisition of materials, arrangement and finding tools, the book trade, the influence of the physical properties of the different writing materials, language distribution, role in education, rates of literacy, budgets, staffing, libraries for specially targeted audiences, architectural merit, patterns of usage, and the role of libraries in a nation's cultural heritage, and the role of government, church or private sponsorship. Since the 1960s, issues of computerization and digitization have arisen. The world's oldest known library was founded sometime in the 7th century B.C. for the “royal contemplation” of the Assyrian ruler Ashurbanipal. Located in Nineveh in modern day Iraq, the site included a trove of some 30,000 cuneiform tablets organized according to subject matter.



Library history is the academic discipline devoted to the study of the history of libraries; it is a subfield of library science and of history.

The need for the preservation of the Quran and the Traditions of Muhammad is what primarily inspired Muslims to develop collections of writings. Mosques that were playing a central role in Muslims' day-to-day life gradually welcomed incorporated libraries that stored and preserved all types of knowledge, from devotional books like Quran to books on philosophy, geography and science.

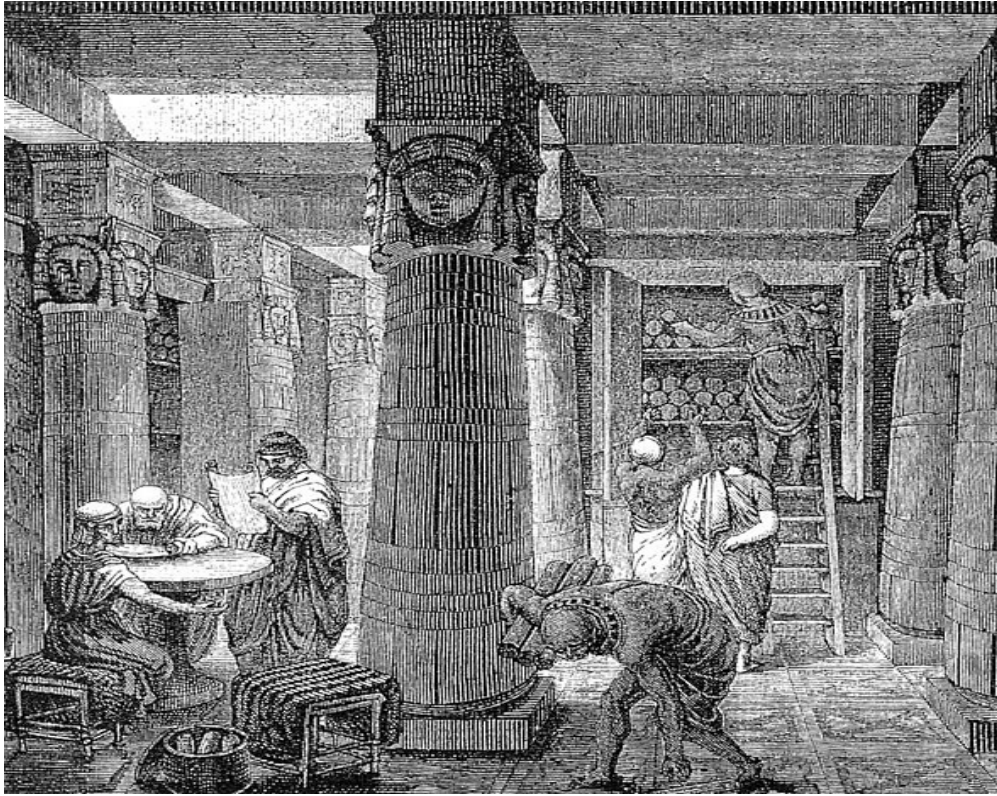
The centrality of the Qur'ān as the prototype of the written word in Islam bears significantly on the role of books within its intellectual tradition and educational system. An early impulse in Islam was to manage reports of events, key figures and their sayings and actions. Thus, "the onus of being the last 'People of the Book' engendered an ethos of librarianship" early on and the establishment of important book repositories throughout the Muslim world have occurred ever since.

By the 8th century China's art of papermaking was acquired by Iranians and then developed across the whole Muslim world. were more easily manufactured and they were more broadly accessible. Coincided with the encouragement of science and a breakthrough in the translation movement, public and private libraries started to boost all around Islamic lands. "libraries (royal, public, specialized, private) had become common and bookmen (authors, translators, copiers, illuminators, librarians, booksellers' collectors) from all classes and sections of society, of all nationalities and

ethnic backgrounds, vied with each other in the production and distribution of books."

A series of outstanding libraries within the Islamic territories were founded and flourished alongside the Islam spread. Abbasid Caliphs were true patrons of learning and collection of ancient and contemporary literature. This genuine enthusiasm actualized as exceptionally fine libraries in Baghdad, a ruling heart of Islamic lands. The Caliphs' generous support for retrieving, copying and collecting the resources flourished all sorts of expertise associated with books. The emergence of theological schools, later on, multiplied the libraries. These schools that were called *Dar al Ilm*, *Madrasa* or *House of Knowledge* were each endowed by Islamic sects with the purpose of representing their tenets as well as promoting the dissemination of knowledge. Rich libraries were inseparable components of 'Houses of knowledge'. The Nizamiyeh, founded by Nizam al Mulk, and Mustansiriyeh Madarsa, founded by al Mustansir, were two most renowned and popular schools which attracted passionate students all across Muslim lands.

Through these major knowledge expansion, libraries transformed into vibrant centers of the Islamic communities. These knowledge sharing centers were being attended constantly by varied patrons from mature scholars and enthusiastic students to poets and courtiers. Major libraries often employed translators and copyists in large numbers, in order to render into Arabic the bulk of the available Persian, Greek, Roman and Sanskrit non-fiction and the classics of literature. At the time libraries were the place that books and manuscripts were collected, read, copied, reproduced and borrowed by students, masters and even ordinary people. The acquisition of new resources could comprise range of procedures with bequest, *waqf*, as the major contributor. Based on this well-grounded tradition, many scholars and men of wealth bequeathed their book collections to the mosques, shrines, libraries and schools through which their private collection would be not only properly preserved but also made accessible to the whole community.



At the time even local rulers demonstrated their passion for knowledge by designing and developing public libraries that could stand out in both aesthetic features and creating a space that maximizes the patrons' comfort. Al-Maqdisi, a Muslim Geographer, once got stunned by stepping into one of these well-designed libraries in Shiraz:

a complex of buildings surrounded by gardens with lakes and waterways. The buildings were topped with domes, and comprised an upper and a lower storey with a total, according to the chief official, of 360 rooms....In each department, catalogues were placed on a shelf... the rooms were furnished with carpets..

Though this flowering of Islamic learning ceased centuries later when learning began declining in the Islamic world, after many of these libraries were destroyed by Mongol invasions. Others were victim of wars and religious strife in the Islamic world. Many of those priceless manuscripts were transferred into European libraries and museums during the colonial period. However, a few examples of these medieval libraries, such as the libraries of Chinguetti in West Africa, remain intact and relatively unchanged.

The contents of these Islamic libraries were copied by Christian monks in Muslim/Christian border areas, particularly Spain and Sicily. From there they eventually made their way into other parts of Christian Europe. These copies joined works that had been preserved directly by Christian monks from Greek and Roman originals, as well as copies Western Christian monks

made of Byzantine works. The resulting conglomerate libraries are the basis of every modern library today.

The Life and Death of the Library of Alexandria

One of the Great Centers of Human Knowledge, Ever

By James Crawford





In 1960, four novels by the well-known English writer Lawrence Durrell were brought together in one volume and published as *The Alexandria Quartet*. Described by its author as “an investigation of modern love,” it was set in the Egyptian city of Alexandria before and during the Second World War, and was largely based on Durrell’s own experiences during his time there as a press attaché. The *Quartet* traced the personal lives of a number of key characters—seemingly based on real individuals, including Durrell’s second wife—from different, competing perspectives. He later claimed, however, that, out of all of the people portrayed and incidents featured, “only the city is real.”

Alexandria was the true hero of the book: an exotic, darkly seductive and sensuous city, fragrant of “offal and drying mud, of carnations and jasmine, of animal sweat and clover.” Durrell painted a picture of a cosmopolitan, Greco-Arab outpost, where East met West in a delicious collision of hotels, hashish cafés, colonial villas and squalid slums, all set

between the blankness of the desert and the blue of the Mediterranean. Yet Durrell's Alexandria was far from a product of the 20th century alone. Instead he called it a "capital of memory," a place that still held on to the "echoes of an extraordinary history." It was a remnant and a shadow of a much greater city, one born out of a dream two-and-a-half thousand years old.

In 331 BC, according to the Greek historian Plutarch, after successfully conquering Egypt, Alexander the Great received a vision in his sleep. A "grey-haired man of venerable appearance," told him of "an island in the much-dashing sea in front of Egypt: Pharos is what men call it." Alexander believed that this visitation was the Greek poet Homer, communicating from beyond the grave. When he travelled to view Pharos, he declared it to be the perfect spot for a city: a city that would bear his name, and that would become a new capital of the ancient world.

With his architect Dinocrates, the young emperor paced out the plan of "Alexandria," scattering barley meal in the sand to mark the locations of palaces, streets and buildings. The city was rectangular in shape and ordered in a grid system, with its length exactly double its width—a design said to be modeled on the *chlamys*, the woollen military cloak worn by Macedonian warriors. A causeway was built between the mainland and the island of Pharos, spanning the sea from the vast royal palace complex that had emerged along the shoreline to create two huge, man-made harbors.

Fresh water was diverted from the mouth of the Nile, running along a twenty-mile-channel into a series of tunnels and great, vaulted cisterns carved out of the rock beneath the city. At the tip of the island, marking the entrance to the port, was a colossal white marble tower: the Pharos—or lighthouse—of Alexandria. At its top, 100 metres above the city, fires were lit and directed with mirrors of polished metal, creating a beacon visible, some said, over 300 miles out to sea.

Little of this Alexandria remained in the city that so captivated Durrell. Certainly, little that could be seen and touched. Over the course of a thousand years, between around 300 and 1300 AD, a series of massive earthquakes, originating in a fault-line that ran from Sicily to Cairo, struck the Egyptian coast. The harbor front dropped slowly closer and closer to the sea, before its great cluster of grand, ornate buildings started to topple into the water, eventually sinking beneath the waves.

In the mid-1990s, marine archaeologists rediscovered this ancient city in fragments lying scattered across the seabed of the modern port. They

found hundreds of fallen columns and capitals, sphinxes sunk into the silt of the harbor floor alongside broken obelisks, and huge stone blocks covered in hieroglyphs and Greek inscriptions. The ruin of the great lighthouse was there too, still lying where it had crashed down into the water after an earthquake in the early fourteenth century. Durrell had described it in the *Alexandria Quartet*, writing of the “Ancient Pharos, whose shattered fragments still choke the shallows”; and one of his characters “had once wanted to start a curio trade by selling fragments of the Pharos as paperweights.” The plan was to smash off the pieces with a hammer “to deliver them to retailers all over the world.” This was no idle whimsy. Nearly three decades after Durrell wrote his novel, people were doing just that with graffiti-dyed chunks of the Berlin Wall.

Although it was built on Egyptian soil, Alexandria was at first a determinedly Greek city, established as the main trading hub of an Empire stretching from the Mediterranean to eastern India. Over time, however, its atmosphere and its architecture became a blend of classical and oriental influences, a mishmash of styles reflecting both its diverse population and the individual tastes of a succession of increasingly self-indulgent—and corpulent—kings. Yet what made the city truly unique was its role as a center for learning and scholarship. Alexandria was built around a simple yet staggeringly ambitious idea: that of holding in one place all of the knowledge ever accumulated by man. A Great Library was established there to become the memory bank of the ancient world, filled with papyrus and parchment scrolls containing everything from poetry, drama and literature, to advanced treatises on mathematics, anatomy, geography, physics and astronomy.

The library became one of the original and most spectacular hostages to fortune in all of world history. The tenet “knowledge is power” was its founding creed; yet if knowledge is power, it can also be threat, temptation, corruption and heresy. It was a sequence of natural disasters that saw the original city swallowed by the sea, but Alexandria’s library had vanished long before. It was claimed neither by cataclysm nor by catastrophe, but by man.

The classical Greek playwrights had invented the concept of “hubris,” the fall that comes after overweening pride and ambition. Looking back across the millennia, there seems a terrible inevitability about the fate of the library at Alexandria. What other destiny could have awaited this first, universal archive—the store of all human intellectual achievement—than total destruction?

In 1996, as construction workers cleared a site in downtown Athens for the foundations of a new Museum of Modern Art, they found traces of a

large structure sitting on the bedrock. A building had occupied this same spot some two-and-a-half thousand years earlier, when it was part of a wooded sanctuary outside the original city walls, on the banks of the River Ilissos. The excavation uncovered the remains of a gymnasium, a wrestling arena, changing rooms and baths. This had been a place for athletics and exercise, where the young men of Athens had trained to become soldiers and citizens. But it was more than just a center for physical improvement. The archaeologists soon realized that they had found one of the most significant sites in all of western European intellectual culture, a site referred to continually by history's greatest philosophers: the Lyceum of Aristotle.

The world's first university. As the dig continued, they uncovered the very chamber where Aristotle had lectured his students on logic, ethics, politics, economics, literature and science. It was only large enough to fit around ten people, but then Aristotle had never confined his teaching to the classroom. According to contemporary accounts, he ranged all over the grounds of the Lyceum, walking as he taught. His followers called his school the "Peripatos," from the Greek meaning "walkway," and they in turn became known as the "Peripatetics." His lecture notes were written down and incorporated into a small, private library, taking their place alongside a selection of prized scholarly books collected from his travels across the ancient world.

Aristotle had established his school at the gymnasium around 335 BC. For the previous eight years he had worked as personal physician and tutor to the son of Philip II of Macedon: young Prince Alexander, before he became "Great." This was Aristotle's most famous pupil, although he also worked with two of Alexander's well-known friends—Ptolemy and Cassander. Eventually relations between the teacher and his protégé broke down irrevocably. Alexander matured to manhood and came to the throne of Macedonia. As his power grew, and more and more territories fell to his army, he began to assume the role not just of a great leader—perhaps the greatest history had ever known—but also of a god. Aristotle viewed this irrationality with a mixture of amusement and contempt.

Nevertheless, Aristotle had instilled in Alexander an enduring respect for education and scholarship. It was the philosopher's teachings that inspired his student to envision Alexandria as the high watermark of Greek culture: a custom-built metropolis, designed according to purist principles. But Alexander died before he could begin work on his great project. In 323 BC, as he rested in his royal palace in Babylon, he succumbed either to malaria or poisoning. Some rather far-fetched, ancient gossip even linked Aristotle to an assassination plot. In the end it was Ptolemy, Alexander's childhood accomplice, trusted general, and

one-time fellow Aristotelian classmate, who would establish Alexandria as a world center for the Greek arts.

At the heart of the city's palace complex, which stretched along the harbor front opposite the island of Pharos, Ptolemy founded two great institutions: a "Shrine to the Muses"—a building known more commonly today as a *museum*—and a huge library. To run the library, Ptolemy turned to a fellow disciple of Aristotle—Theophrastus, the new head of the Athenian Lyceum. Theophrastus declined the offer, but recommended instead one of his best students, Demetrius of Phalerum. For Demetrius, the timing could not have been better. In 317 BC, Cassander, the third of the young Macedonian pupils of Aristotle, had appointed Demetrius as ruler of Athens. For a decade Demetrius had tried to organize the city according to the high-minded political and philosophical ideas of his great teachers. The attempt was something of a disaster. By the end of his reign, the Athenians regarded him as little more than a tyrant whose lecture-hall theories were utterly ill-equipped to deal with governance in the real world. Overthrown and exiled from the city—on pain of death if he ever returned—Demetrius had been languishing back under the cloak of Cassander at his court in the Greek city of Thebes. The opportunity of royal patronage to embark on another great intellectual endeavor—a safe distance from Athens—was too good to pass up.

One of the earliest surviving accounts to make specific mention of Alexandria's library comes in the middle of the second or third century BC (the actual dating is a matter of much debate), written by Aristeeas, a Jewish scholar who had come to live and work in the city. In a letter to his brother Philocrates, he appears to detail both the extraordinary progress made by Demetrius after being put in charge of the institution, and the vast scope of the task set by Ptolemy:

[Demetrius] was assigned large sums of money with a view to collecting, if possible, all the books in the world; and by arranging purchases and transcriptions he carried the king's design to completion as far as he was able. When he was asked, in my presence, about how many thousands of books were already collected, he replied: "above two hundred thousand my king; and in a short while I shall exert every effort for the remainder, to round out the number of half a million."

Aristeeas also recounts his own involvement at the library, along with 71 other Jewish scholars, in one of the most significant projects of ancient history: translating into Greek the writings that would later form the Christian Old Testament.

Alexandria's library was not the first the world had ever known. Attempts had been made to collect and preserve writing almost from the

moment that it had been invented. The Mesopotamians, for instance, had established a number of royal libraries; Egyptian priests had managed great archives of diplomatic correspondence written on scrolls or tablets; and the Assyrian King Ashurbanipal had kept a huge collection of works inscribed in baked clay, which included the Epic of Gilgamesh, the world's earliest known work of literature. Yet nothing had come close to the ambition of Alexandria. Conceived by the students of Aristotle, now among the most influential figures in the western world, it combined philosophical and intellectual purity with swaggering imperial might. The modest model of the Athenian Lyceum and its private library was reimagined on a gargantuan scale: as if the voracious quest for "more worlds" in Alexander's reign had been replaced by an equally urgent search for knowledge. In both cases, however, the objectives were clear: prestige and power. As humanity's intellectual capital, Alexandria could stand proud above every other city on earth.

Like today, most libraries in the ancient world grew through acquisitions, gifts, bequests and loans—as well as, of course, from the writing and depositing of entirely new texts. In Alexandria, however, where the goal was to gather and catalogue every book ever written, the collections strategy was more extreme. The Ptolemy dynasty instituted a law that any book brought into the city had to be passed immediately to the library's scribes for copying. More often than not, the original was kept and the copy returned to its owner. The thousands of ships docking in the city's three inter-connected deep-water harbors were searched routinely, and any texts not already declared and unloaded onto the quay-sides were seized and confiscated.

So many books were added to the library through this method, that they received their own categorization: a label attached to each parchment that read "from the ships." Agents were employed to travel to book markets across the Mediterranean in search of rare and original works. In the third century BC, Ptolemy III sent emissaries to all the kings and leaders in the known world, asking to borrow their books for copying. When the Athenians lent him the master copies of the works of the great Greek tragedians Aeschylus, Euripides and Sophocles, the king kept the originals and sent the fresh copies back across the sea, regarding his forfeited deposit of 15 talents as a small price to pay for so precious a set of first editions.

The shelves—or *theke*—of the library filled up at an incredible rate. At the same time, the Ptolemies worked jealously to establish a monopoly on the practice of collecting and curating information. When a rival library was established at Pergamum in present-day Turkey, they banned the export of Egyptian papyrus, an attempt to cut off at source the

“oxygen” for the creation and copying of books. The Pergamum library struggled on, with their scribes forced to work on parchments made from animal skins. As the reputation of Alexandria grew, its combination of reference works, scholarship and research began to reach critical mass. Academics flocked to the city on the promise of free board and lodging in the opulent royal quarter, as well as exemption from taxes, funding for study, and of course access to the library. It became an irresistible magnet for the great minds of the ancient world. They could flourish under the patronage of their Greek kings, and devote their lives to nothing but the pursuit of knowledge. The dream of the Ptolemaic rulers was crystallizing into an ever more potent reality: as the intelligentsia flooded the city, the kings came to hold dominion over the Empire of the Mind.

Towards the end of the second century BC, the scholar Athenaeus described the fame the library had achieved in the ancient world. “What reason is there for me even to speak of the number of books, the establishment of libraries, and the collection in the Museum,” he wrote, “considering how they are all the memories of everyone?” Yet in his account Athenaeus also appeared to hint at the drawbacks of accumulating such a vast repository of data: too much raw, unprocessed knowledge can be little different to no knowledge at all.

The Roman architect and engineer Vitruvius’s description of the life of Aristophanes of Byzantium, who was Alexandria’s head librarian at the start of the second century BC, stood as a similar warning of the dangers of bibliomania: “Every day he did nothing other than read and reread all the books of the Library, for the whole day, examining and reading through the order in which they were shelved.” If he was not careful, the librarian could be swallowed up by his own library.

It became clear that the scale of the Alexandrian enterprise presented a new and unique challenge. Once you had brought all of the works of man under one roof, how could you then go about finding information on just *one* specific topic? The answer was to invent an entirely new system for identifying, registering and locating texts. This monumental task fell to the critic, poet and scholar Callimachus of Cyrene, who devised a system called the *Pinakes*—literally, the “Tables”—which compressed and categorized any given book into an abbreviated shorthand.

The *Pinakes* divided texts by genre and subsection, ordered authors alphabetically, offered potted biographies and lists of their other works, included titles and opening words, and provided estimates of the extent of each individual work by number of lines. It was the creation of an archive within an archive, the key that unlocked the library’s vast data

bank. Callimachus changed forever how we engage with writing. Massive works were reduced to basic ciphers, signposts inviting a scholar to read on, or move on. All of a sudden, books were defined by their catalogue entries, translated into a new grammar of genres, titles and line-counts—the universal language of the index.

If some were dismayed by the implications—in particular by the subjectivity inherent in the summarizing process—without the *Pinakes*, the library would have been unusable. Callimachus's innovation transformed Alexandria, and remains the basis for the cataloguing and bibliographic system we use today. For the first time, scholars could access information on a huge range of diverse subjects, and consult, process and synthesize data all at once. The results were sensational.

As early as 235 BC, the geographer and mathematician, Eratosthenes of Cyrene was proposing not only that the earth was round—in an age when almost all believed it was flat, with an edge off which the unwary could drop—but had also calculated its circumference and diameter (the former to within 200 miles of its actual size, the latter to within 50 miles). He was also able to conclude that all the oceans were connected, and was the first man in history to suggest the possibility of circumnavigating the globe. But scholarship at Alexandria was not confined to exploring the extent and properties of our own world. Men like Timocharis, Hipparchus, Aristyllus and Claudius Ptolemaeus created maps of constellations and catalogued thousands of stars. Nearly two millennia before Copernicus, Aristarchus of Samos put forward the theory that the sun was the center of the universe, and that the earth and all the other planets in the solar system revolved around it in a circle.

In the dissection rooms of the Museum, huge advances were made in medical science, aided by the Ptolemies' willingness to offer up dead bodies for study. Chillingly, it was also rumored that condemned criminals were supplied "out of prison by the Kings," to be subjected to the horrors of vivisection. Herophilus's study of the brain at Alexandria led to the discovery of the central nervous system and the role of the veins in blood circulation, proposing, for the first time, that the brain, and not the heart, housed the human mind. His younger colleague Erasistratus, with whom Herophilos founded a school of anatomy, carried on this groundbreaking work, mapping all of the body's arteries, identifying the respiratory function of the lungs, and exploring the digestive system to conclude, among other things, that the feeling of hunger stemmed from an empty stomach.

In the early third century BC, the mathematical genius Euclid wrote the *Elements* at Alexandria, a series of proofs and axioms drawn together in a single, logical treatise. It was the founding work of mathematics and geometry, the definitive reference book enabling every future scholar to apply universal theories to myriad practical applications. As a result, engineering and physics flourished in the city. It was here, for instance, that Archimedes invented his enduring “screw” water-pump, and experienced his famous “*Eureka!*” moment to create calculus, his methodology for working out areas and volumes. But the many great advances were not confined to endless rolls of parchment and lines of shelving. Over time, this feverish spirit of discovery and invention spilled out of the halls of learning to transform the city itself.

Alexandria became the setting for awe-inspiring wonders. Operated by running water, mechanical birds sang and whistled from the tops of trees and fountains. Using compressed air, statues would blow trumpets, raise wineskins to their lips, or shoot arrows. Temple doors would open and close automatically, controlled by the lighting and extinguishing of fires. The city’s wide, central avenue was lit at night by automatic, air-powered street-lamps burning olive oil. These devices came from the mind of Hero, a native of Alexandria in the first century AD, and one of the most prolific innovators of the ancient world. The founding father of hydraulics, he explored in his master-work *Pneumatica* how “by the union of air, earth, fire and water, and the concurrence of three or four elementary principles, various combinations are effected, some of which supply the most pressing wants of human life, others produce amazement and alarm.”

Hero’s box of tricks also included the coin-operated drink-dispenser—“a sacrificial vessel which flows only when money is introduced”—and the syringe. In his construction of a short play performed by automata, controlled by weights winding ropes and strings back and forth around an axle, he is credited with building the very first programmable robot. Most remarkable of all, however, was what he named the “*Aeolipile*,” after Aeolus, the Greek God of the air and winds. A sphere held above a heated, water-filled cauldron was made to revolve perpetually under the power of pressurized steam. Hero intended this as a simple amusement, an intriguing toy that proved a theory. What he had in fact created was the world’s first steam engine and turbine, the same “motor” for the Industrial Revolution, 16 centuries later.

Looking back now, the imagination is sent reeling by the possibilities. Imagination, of course, is almost all that we have left. At some point in ancient history, we know that the library and its priceless contents were

destroyed, most likely burned to ashes. A vast tract of the collective memory and accomplishments of classical human civilization and culture was wiped out. What we do not know, at least for certain, is who was responsible.

Historians ever since have told and retold the story as a persistent, haunting and unprecedented narrative of loss. At the same time, they have pored over the fragmentary evidence in their search for a culprit, embarking on a politically charged manhunt to find and prosecute whoever consigned the library to its terrible fate.

*

In the autumn of 48 BC, the Roman General—and soon to be dictator—Julius Caesar looked out from the palace quarter of Alexandria over the vast, sweeping harbor to the Mediterranean Sea, and reflected on how quickly man's fortunes could turn. When he had arrived in the city several weeks earlier, he had been presented by the local authorities with the signet ring and severed head of his great rival, Pompey. Caesar wept at the sight of the ring, and was too distraught even to look at the head. Pompey and Caesar, the two great Titans of Rome, had fought out a vast and sprawling civil war that would ultimately see their Republic transformed into an Empire. Pompey's demise, as victim of a crude assassination plot after he landed in Alexandria three days ahead of a pursuing Caesar, had been a tawdry end to such an epic conflict.

The murder, it seemed, was an attempt by the Alexandrians to demonstrate their allegiance to Caesar. Battle-weary and exhausted, and with sailing impossible due to the prevailing winds, Caesar decided to land his troops in the harbor and take up temporary residence in the royal palace. He marched with his legionnaires through the streets, carrying at the head of their procession a *fascis*—a bundle of rods containing an axe—signifying the military might and authority of Rome. The gesture backfired, quite spectacularly. Roman soldiers were attacked and killed in the streets by angry mobs, and soon Caesar and his men found themselves holed up in the palace, their small fleet blockaded in the harbor, and the city besieged by an army of 20,000 men belonging to the teenage King Ptolemy XIII. Egypt, it transpired, was undergoing a civil war of its own. Caesar had inadvertently found himself at the center of an ongoing and bloody battle for succession. And things were about to get even more complicated. One evening, a 20-year-old princess, the older sister of Ptolemy XIII, landed a small boat near Alexandria's royal palace. In the gathering dusk, she was smuggled by her servant Appollodorus into Caesar's chamber, her body hidden lengthways in a thick roll of bedding. She had come to plead for Caesar's support and for his help to wrest control of Egypt away from her younger brother. Her name was Cleopatra. At around the same time, Caesar

suspected that the eunuch Pothinus—his palace host and Ptolemy XIII's obsequious regent—was plotting against him. In the circumstances, it is hardly surprising that he had taken to sitting up whole nights with his soldiers drinking.

Alexandria had become a war zone. Caesar's men fought pitched battles in the streets as they struggled to hold out in the palace compound. In one skirmish, Ptolemy's army attempted to break through the Roman lines to take complete control of the harbor and all of its warships. As Caesar later recounted in his book *Commentaries on the Civil Wars*—writing in the third person—he knew it would spell catastrophe if he allowed his ships to fall into enemy hands: “If they made themselves masters of these, Caesar being deprived of his fleet, they would have the command of the port and whole sea, and could prevent him from procuring provisions and auxiliaries.” In desperation, he ordered an action at once extreme and tactically masterful. “Caesar gained the day,” he wrote, “and set fire to all those ships, and to others which were in the docks, because he could not guard so many places with so small a force.” If he could not hold the harbor, then no one would. Full of self-admiration for the success of his ploy, Caesar moved briskly on to detail the next episode in the siege.

Over time, however, other writers and scholars kept coming back to this incident, scrutinizing its consequences in ever more vivid detail. Around a century later, the great Roman poet Lucan published an epic verse on the civil wars, called the *Pharsalia*. According to his account, Caesar, “so great in his firmness of mind... commands that firebrands dipped in pitchy fat be hurled against the vessels linked together.” While at first the fire raced across the fleet, till “the top most yard-arms caught alight,” Lucan writes that “not on ships alone did fire settle; but the dwellings which were near the sea caught fire from its far-reaching heat... and the flame, struck by a whirlwind, ran through the dwellings as swiftly as a meteor often races with its trail in the ether.” Such, it seemed, was the extent of the blaze, “that destruction for a little time recalled the people from the besieged palace to help the city.”

While Lucan did not dwell on which buildings were caught up in the conflagration, his contemporary, the philosopher Seneca, allegedly basing his story on a mysteriously lost account of the conflict, written at the time by the great historian Livy, was unequivocal. “40,000 of the books of Alexandria burned,” he wrote. It was the first time that any explicit link had been made between Caesar's fire and the destruction of the library. While the number of books mentioned seems a small portion of Alexandria's vast collection, it has been suggested that this figure is a

mistranslation from the original Latin, and should read 400,000. Regardless of the numbers, later writers seized on the detail and elaborated on the impact. Most influential of all was Plutarch. In his *Life of Caesar*, written at the end of the first century AD, he described the moment in the Alexandrian siege when Caesar's enemies "tried to intercept his communications by sea and he was forced to deal with this danger by setting fire to the ships in the docks. This was the fire which, starting from the dockyards, destroyed the great library." A century on, and the Roman historian, Aulus Gellius reported that "an enormous quantity of books, nearly seven hundred thousand volumes... burned during the sack of the city in our first war in Alexandria."

Lucan's insinuating spark had, over the centuries, burst into an inferno of scholarly condemnation. There was, it seemed, quite literally, no smoke without fire. Julius Caesar stood accused of perpetrating the greatest act of cultural vandalism in the entire history of the ancient world. As time passed, however, he would not be alone.

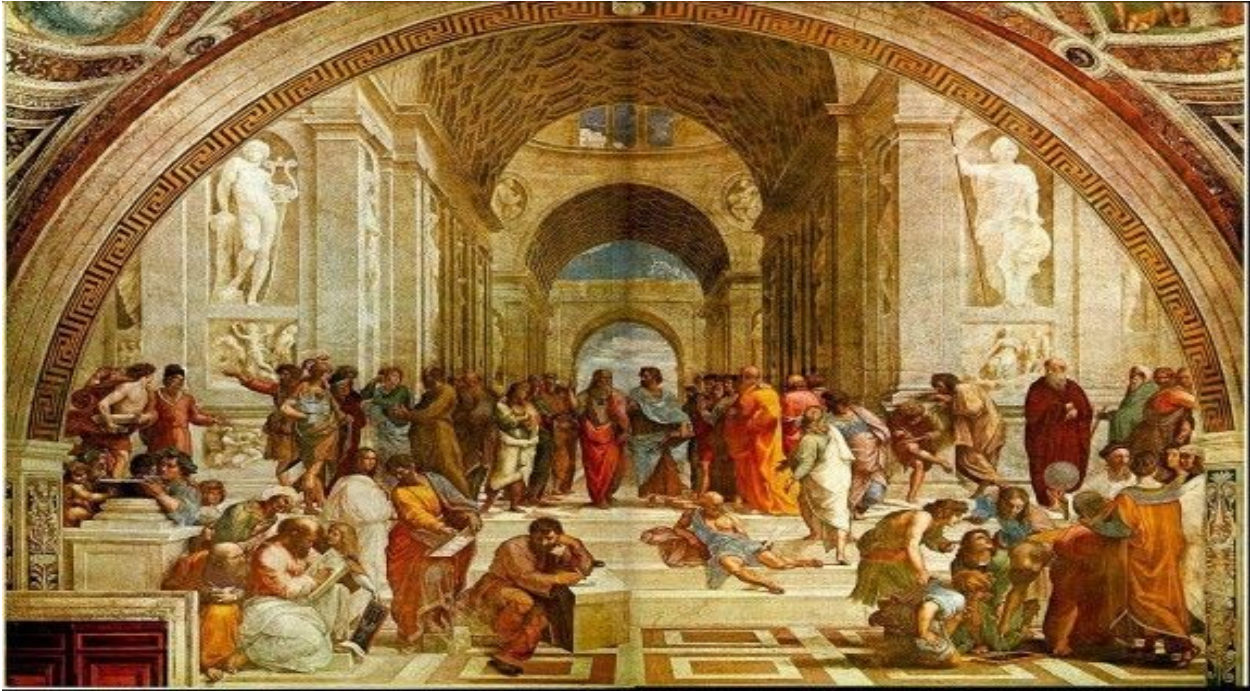
In March of AD 415, during the celebration of Lent, a young woman called Hypatia was traveling by chariot through the streets of Alexandria. Hypatia was the daughter of Theon, perhaps the greatest mathematician of the age, and a keen student of the great works of the now-distant classical world. At the beginning of the fifth century, she began teaching the philosophy of Aristotle and Plato to the people of Alexandria, and as the contemporary historian, Socrates Scholasticus put it, she had "made such attainments in literature and science," that many students "came from a distance to receive her instructions." As her fame and her reputation grew—she was said to be revered not just for her wisdom, but also for her beauty and virtue—she began to attract the attention of the city's religious authorities, and became implicated in a political power struggle between Orestes, the governor of Alexandria, and Cyril, the Christian Bishop.

For years, religious disputes between the city's Christians and Jews had been escalating into increasingly bloody riots, and a group of fanatical monks, eager to fight for their holy cause, had descended on Alexandria from their sanctuary in the remote mountains of the Nitrian desert. Orestes had often come to Hypatia to seek council, and a rumour spread that she was responsible for turning the governor away from the Christian faith. According to Bishop John of Niku, writing around AD 650, Hypatia was "a pagan... devoted at all times to magic," who had "beguiled many people... And the governor of the city honored her exceedingly; for she had beguiled him through her magic." For Niku, this

woman's famed knowledge of philosophy and mathematics only confirmed her "Satanic wiles."

Drunk on puritanical fury, a group of the Nitrian monks, led, ironically, by a man called Peter "the reader," ambushed Hypatia in her chariot, pulled her down from her carriage to strip her naked, and then dragged her through the streets to the Caesareum, a nearby church. There the mob used oyster shells and roof tiles to scrape her skin from her body, before they tore her limbs apart, and carried them outside the city walls to burn them to cinders. For Niku, the brutal murder of Hypatia marked a triumphant, final end to pagan worship and idolatry in the city. Scholasticus, on the other hand, despaired that "nothing could be farther from the spirit of Christianity." What seemed abundantly clear was that the city's great tradition of learning and scholarship—its very founding principle—was no more. It was not one great mind that died with Hypatia. It was all intellectual life in Alexandria.

There had been a horrible inevitability to this. From AD 378 onwards, the Roman Emperor Theodosius, the last sole ruler of the empire before it split into East and West, announced a series of decrees ordering the disbanding, dismantling, and ultimately the destruction of all pagan temples. Christianity became the official religion of the Romans, and there was a zealous desire to sweep away every impious and heretical trace of the old gods. First, the eternal fire in the pagan Temple of Vesta in the Forum of Rome was extinguished, and as it flickered out, persecution spread across the empire.



School of Athens by Rafael

The School of Athens is one of the huge frescoes painted by Raphael (1483-1520) in the Vatican's Stanza della Segnatura. Many of the other figures represent real people as well. These include a number of philosophers, some of them contemporary with Plato and Aristotle, and others not

In Alexandria, a man called Theophilus, the city's Christian patriarch and Bishop, sparked a religious war as he campaigned to eradicate the ancient faiths. The last stand for the city's pagan followers came in AD 391 at the Serapeion, the great temple fortress built to honor the Greco-Egyptian God Serapi—a deity who had been invented some seven-and-a-half centuries earlier by Ptolemy to help *unify* the people of his kingdom. Although the pagans taunted their Christian adversaries by hoisting crucified prisoners up onto the Serapeion's walls, they were vastly outnumbered, and their fleeting resistance served only to further heighten the atmosphere of destructive fervor. As the temple fell, the great statue of Serapis was smashed down and kicked through the streets, before being thrown onto one of many great fires set burning in every precinct of Alexandria. It joined countless other profane objects and artefacts depicting the ancient gods and goddesses.

Something else may also have been fuelling the flames, however: the hundreds of thousands of scrolls of the city's famous library. According to Edward Gibbon, the author of the landmark work *The History of the Decline and Fall of the Roman Empire*, in the rioting, "the valuable library of Alexandria was pillaged or destroyed; and, near 20 years afterwards, the appearance of the empty shelves excited the regret and

the indignation of every spectator, whose mind was not totally darkened by religious prejudice." Gibbon's narrative set Roman Christianity against Greek intellectualism, piety against enlightened thought. Science was tainted as a pagan pursuit, and an enemy of faith. The library, as with many others throughout the empire, was seen as a living archive of heresy, and just like the old temples, it had to be destroyed. "The compositions of ancient genius" wrote Gibbon, were heaped onto the bonfires, where they 'irretrievably perished." Two centuries later, however, the library had mysteriously and miraculously come back to life—Gibbon's empty shelves were once again filled with scrolls and parchments. Unfortunately, this bibliographical resurrection was less reality, more narrative device: a means of introducing yet another villain into the mythology of Alexandria. In the early years of the seventh century AD, a new power had emerged from the deserts of the Middle East: a rapidly swelling group of Arab nomads following the teachings of Mohammed. This was the beginning of the Muslim Empire.

By AD 640, the armies of Islam had conquered Persia, Syria and Palestine, and had advanced through Egypt to lay siege to Alexandria. The city was one of the last major footholds of the Byzantine Empire in Africa. Heavily fortified, its subterranean cisterns full of fresh Nile water, and its grain stores abundant, it was prepared for a war of attrition. It took 14 months for the Muslim general Amr ibn al-As to break down the will and the spirit of the defenders, much to the displeasure of the impatient Caliph Omar, Islam's spiritual leader. Finally, on 29 September AD 641, the city surrendered. As the Arabs rushed through the streets in celebration, they found a city largely emptied of its inhabitants: many had already fled by boat to Cyprus, Rhodes and the Byzantine capital, Constantinople.

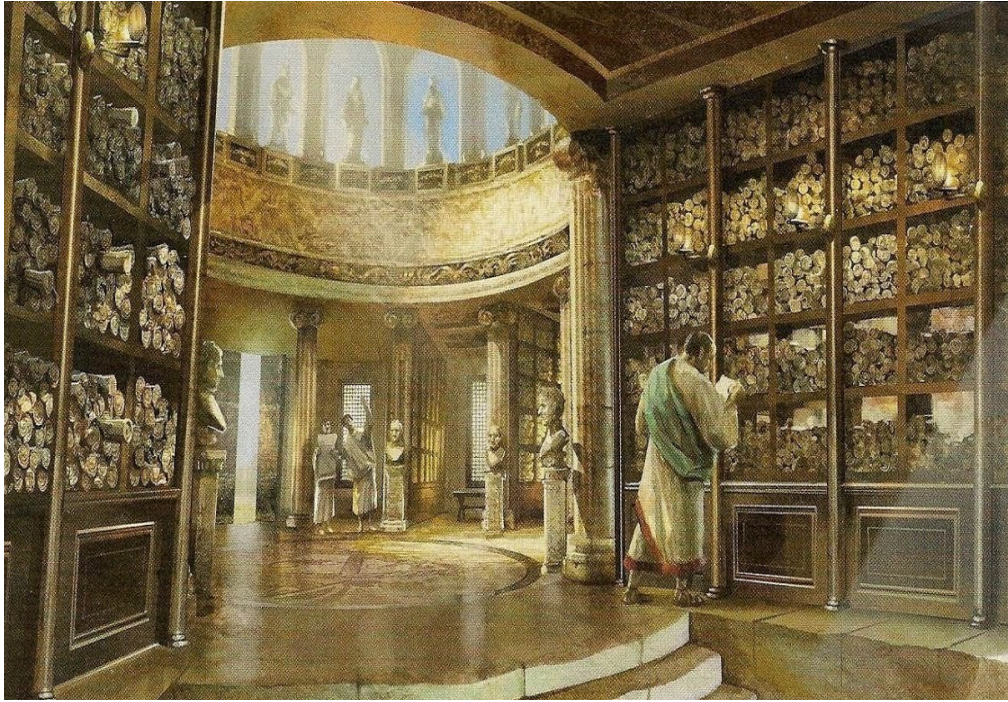
Writing five centuries after the siege, the Muslim historian Ibn Al-Qifti, described how a victorious Amr talked with an Alexandrian priest, John the Grammarian, and learned of a priceless collection of 54,000 books kept within a library in the city. A faithful and conscientious lieutenant, Amr wrote to his leader Omar to ask him what he should do with the books. The response was a study in the warped logic of fanaticism. "If these writings of the Greeks agree with the book of God," said Omar, "they are useless and need not be preserved; if they disagree, they are pernicious, and ought to be destroyed." According to Al-Qifti, Amr obeyed without question. The vast rolls of paper and parchments were divided out among the city's four thousand bathhouses, where they were burnt to heat the water. There were so many books it was said, that they kept the baths of Alexandria warm for over six months.

And so Alexandria's library, and its disappearance, remains one of the greatest enigmas of ancient history. It could have contained everything. And, just as conceivably, it could have contained nothing. Its books were collateral damage in the civil war that turned the Roman Republic into an Empire. They were the victims of a Christian crusade against pagan learning. They fell foul of the absolutist policies of early Islamic fundamentalism. Each theory is put forward by one group of historians, only to be demolished by another.

Some say, for instance, that Caesar's fire merely destroyed a warehouse filled with scrolls and parchments recently unloaded from the harbor. The story of fourth-century Christian vandalism is attacked as a misinterpretation or a deliberate manipulation of the sources to serve an anti-religious agenda on the part of enlightenment scholars like Edward Gibbon. And Ibn Al-Qifti's account is exposed as a myth written out of political expediency: as libraries across the 12th-century Muslim world were dispersed and auctioned off to pay debts, Al-Qifti created the legend of the bathhouse fires to stress that it was less of a crime to sell books than to burn them. In the end, no one was responsible for the library's destruction. That always happened sometime else, at the hands of someone else. Perhaps, suggest the whispers, it had never really existed in the first place.

<https://lithub.com/the-life-and-death-of-the-library-of-alexandria/>

Library of Alexandria — myths and facts
A Library that wanted to have a copy of every book ever written.Peter Preskar.2020



Library of Alexandria-artistic rendition (Image: 21h007)

Inside of

Did you know?

- Word museum is derived from Musaeum, meaning “Home of muses”.
- Euclid, father of geometry, studied at Library of Alexandria.
- Scholars working at Library were paid by Pharaoh, had free meals, accommodation and servants so they were able to focus only on research.

City of Alexandria, a city in modern day Egypt, was founded by Alexander the Great in 331 BC. After the death of Alexander his general Ptolemy I Soter gained power over Egypt. Alexandria became an international hub for a trade between East and West. It was one of the largest cities of antiquity, only Rome was bigger. In order to safely lead ships in to the harbor and to show off their wealth, Ptolemaic rulers built Lighthouse of Alexandria. One of the tallest man-made buildings of Ancient world and considered one of the Seven wonders of the world. Egypt was also a leading manufacturer of papyrus. Predecessor of modern-day paper. Papyrus was made from papyrus plant, which is growing around the river Nile.



Artistic image of Lighthouse of Alexandria, one of the Seven wonders of Ancient world. (Screenshot from computer game Assassins Creed: Origins by Ubisoft Studios)

Library of Alexandria at its height

The Library of Alexandria was part of Musaeum, a science research center dedicated to knowledge. It was build during the reign of Ptolemy II Philadelphus (Reign 284-246 BC). Ptolemaic rulers of Egypt fostered progress and knowledge collection. They gave scholarships to scientists, philosophers and poets to come and live in Alexandria.

In exchange rulers were getting advice on how to rule their vast country. The Library of Alexandria was eager to maintain position of the greatest source of knowledge. Supported financially by Ptolemaic rulers of Egypt librarians collected every book available.They were buying books. They were transcribing books. It was said books were transcribed with a such accuracy it was impossible to notice whether they returned originals or a copy.



Scribes at work (Image: Youtube/Assassin's creed: Origin)

Each time a ship arrived to the harbor. Librarians would search the ship and take all the books. Legend says Ptolemy III asked Athenians to borrow original manuscripts by Sophocles, Aeschylus and Euripides. Athenians demanded 500 kg of gold as a guarantee to get the scrolls back. Librarians copied manuscripts, kept originals and gave to Athenians copies saying to them they can keep the gold. At its height Library of Alexandria housed 400.000 scrolls which *would* be an equivalent of 100.000 books.

At certain point a daughter library had to be established in the Serapeum, a temple of the god Serapis, in order to be able to house all the books.

Archimedes and Eratosthenes

Archimedes, famous for his Archimedes principle — a law of displacement which we all had to learn during our school years, visited Library of Alexandria. It is said Archimedes noticed the need of nearby farmers to deliver water from Nile to higher plateaus. He solved a problem by inventing Archimedes screw. An invention still used today.

Archimedes friend Eratosthenes was head of Library of Alexandria. Like Archimedes Eratosthenes was considered a genius.

Eratosthenes was nicknamed a Father of Geography because he accurately calculated circumference of the Earth and distance between Earth and Sun. All that in 240 BC!



A papyrus scroll (Image: Ancient.eu) Artist image of burning of Library of Alexandria, Egypt in 391 AD. After the painting by Ambrose Dudley (1867-1951). From Hutchinson's History of the Nations, published 1915.

Eratosthenes calculated the planet to be 24,650 miles around which is almost a real distance of 24,900. He predicted a leap year of 366 days every fourth year and started using parallels and meridians. Additionally he invented a mathematical method for finding of prime numbers. Method is called a Sieve of Eratosthenes. Eratosthenes had access to enormous knowledge housed in Library of Alexandria which helped him in his research.

Decline of Library of Alexandria

Contrary to popular myth Library of Alexandria wasn't destroyed by Julius Caesar and Romans who interfered with civil war in Egypt in 48 BC. Caesar set fire to the ships in nearby harbor, but unfortunately fire spread into the library. However most important scrolls were saved. Fact is Library of Alexandria declined in its importance gradually over the centuries.

Decline of the Library of Alexandria corresponds with the decline of Egypt. Ptolemaic reign weakened over the centuries and their kingdom was eventually absorbed by the mighty Roman empire. During Roman reign Library received much less funding which led to decline of research and number of scrolls. In 270 AD Alexandria revolted against Rome which led to

imperial counterattack and destruction of the Library. However, it's twin sister Library at Serapeum survived till 391 when it was demolished on orders from Christian Bishop Theophilus of Alexandria. Books, which survived were completely destroyed in 7th century by Muslim rulers of Egypt.

Destruction of Library of Alexandria meant a huge loss of knowledge and significantly slowed down progress of humanity. For example Librarians knew the Sun and not the Earth was center of our solar system. They knew Earth was round. It took another thousand years and geniuses such as Galileo and courageous explorers such as Columbus and Magellan to discover the truth again. Imagine at which stage of technological and scientific development our society would be right now!

To this very day destruction of Library of Alexandria symbolizes loss of knowledge due to political or religious **reasons**.
<https://historyofyesterday.com/library-of-alexandria-13c1e5c98a18>



Inside of Library of Alexandria — artistic rendition (Image: Assassin's creed: Origins)

8 other Legendary Ancient Libraries

EVAN ANDREWS

[HTTPS://WWW.HISTORY.COM/NEWS/8-IMPRESSIVE-ANCIENT-LIBRARIES](https://www.history.com/news/8-impressive-ancient-libraries)

1. **The Library of Ashurbanipal:** The world's oldest known library was founded sometime in the 7th century B.C. for the "royal contemplation" of the Assyrian ruler Ashurbanipal. Located in Nineveh in modern day Iraq, the site included a trove of some 30,000

cuneiform tablets organized according to subject matter. Most of its titles were archival documents, religious incantations and scholarly texts, but it also housed several works of literature including the 4,000-year-old “Epic of Gilgamesh.” The book-loving Ashurbanipal compiled much of his library by looting works from Babylonia and the other territories he conquered. Archaeologists later stumbled upon its ruins in the mid-19th century, and the majority of its contents are now kept in the British Museum in London. Interestingly, even though Ashurbanipal acquired many of his tablets through plunder, he seems to have been particularly worried about theft. An inscription in one of the texts warns that if anyone steals its tablets, the gods will “cast him down” and “erase his name, his seed, in the land.”



Part of a clay tablet, Neo-Assyrian. (Credit: Public Domain)

2. The Library of Alexandria Mentioned already

3. The Library of Pergamum



Reconstruction of Pergamon. (Credit: De Agostini/Getty Images)

Constructed in the third century B.C. by members of the Attalid dynasty, the Library of Pergamum, located in what is now Turkey, was once home to a treasure-trove of some 200,000 scrolls. It was housed in a temple complex devoted to Athena, the Greek goddess of wisdom, and is believed to have comprised four rooms—three for the library’s contents and another that served as a meeting space for banquets and academic conferences. According to the ancient chronicler Pliny the Elder, the Library of Pergamum eventually became so famous that it was considered to be in “keen competition” with the Library of Alexandria. Both sites sought to amass the most complete collections of texts, and they developed rival schools of thought and criticism. There is even a legend that Egypt’s Ptolemaic dynasty halted shipments of papyrus to Pergamum in the hope of slowing its growth. As a result, the city may have later become a leading production center for parchment paper.

4. The Villa of the Papyri



The long-buried Villa of the Papyri opened to the public almost 2000 years after it was submerged in volcanic mud in Herculaneum. (Credit: Eric VANDEVILLE/Getty Images)

While it wasn't largest library of antiquity, the so-called "Villa of the Papyri" is the only one whose collection has survived to the present day. Its roughly 1,800 scrolls were located in the Roman city of Herculaneum in a villa that was most likely built by Julius Caesar's father-in-law, Lucius Calpurnius Piso Caesoninus. When nearby Mount Vesuvius erupted in 79 A.D., the library was buried—and exquisitely preserved—under a 90-foot layer of volcanic material. Its blackened, carbonized scrolls weren't rediscovered until the 18th century, and modern researchers have since used everything from multispectral imaging to x-rays to try to read them. Much of the catalogue has yet to be deciphered, but studies have already revealed that the library contains several texts by an Epicurean philosopher and poet named Philodemus.

5. The Libraries of Trajan's Forum

Sometime around 112 A.D., the Emperor Trajan completed construction on a sprawling, multi-use building complex in the heart of the city of Rome. This Forum boasted plazas, markets and religious temples, but it also included one of the Roman Empire's most famous libraries. The site was technically two separate structures—one for works in Latin, and one for works in Greek. The rooms sat on opposite sides of a portico that housed Trajan's Column, a large monument built to honor the Emperor's military successes. Both sections were elegantly crafted from concrete, marble and granite, and they included large central reading chambers and two levels of bookshelf-lined alcoves containing an estimated 20,000 scrolls. Historians are unsure of when Trajan's dual library ceased to exist, but it was still being mentioned in writing as late as the fifth century A.D., which suggests that it stood for at least 300 years.



Trajan's Forum. (Credit: John Harper/Getty Images)

6. The Library of Celsus



Library of Celsus. (Credit: Public Domain)

There were over two-dozen major libraries in the city of Rome during the imperial era, but the capital wasn't the only place that housed dazzling collections of literature. Sometime around 120 A.D., the son of the Roman consul Tiberius Julius Celsus Polemaeanus completed a memorial library to his father in the city of Ephesus (modern day Turkey). The building's ornate façade still stands today and features a marble stairway and columns as well as four statues representing Wisdom, Virtue, Intelligence and Knowledge. Its interior, meanwhile, consisted of a rectangular chamber and

a series of small niches containing bookcases. The library may have held some 12,000 scrolls, but its most striking feature was no doubt Celsus himself, who was buried inside in an ornamental sarcophagus.

7. The Imperial Library of Constantinople



The Theodosian city walls originally built in the 5th century during reign of Theodosius II.

Long after the Western Roman Empire had gone into decline, classical Greek and Roman thought continued to flourish in Constantinople, the capital of the Byzantine Empire. The city's Imperial Library first came into existence in the fourth century A.D. under Constantine the Great, but it remained relatively small until the fifth century, when its collection grew to a staggering 120,000 scrolls and codices. The size of the Imperial Library continued to wax and wane for the next several centuries due to neglect and frequent fires, and it later suffered a devastating blow after a Crusader army sacked Constantinople in 1204. Nevertheless, its scribes and scholars are now credited with preserving countless pieces of ancient Greek and Roman literature by making parchment copies of deteriorating papyrus scrolls.

8. The House of Wisdom



Portrait of Razi polymath, physician and alchemist in his laboratory in Bagdad, Iraq. (Credit: Leemage/Getty Images)

The Iraqi city of Baghdad was once one of the world's centers of learning and culture, and perhaps no institution was more integral to its development than the House of Wisdom. First established in the early ninth century A.D. during the reign of the Abbasids, the site was centered around an enormous library stocked with Persian, Indian and Greek manuscripts on mathematics, astronomy, science, medicine and philosophy. The books served as a natural draw for the Middle East's top scholars, who flocked to the House of Wisdom to study its texts and translate them into Arabic. Their ranks included the mathematician al-Khawarizmi, one of the fathers of algebra, as well as the polymath thinker al-Kindi, often called "the Philosopher of the Arabs." The House of Wisdom stood as the Islamic world's intellectual nerve center for several hundred years, but it later met a grisly end in 1258, when the Mongols sacked Baghdad. According to legend, so many books were tossed into the River Tigris that its waters turned black from ink.

Chapter 3

Iraq's Golden Age: The Rise of the House of Wisdom

Isabella Bengoechea





Lost to us since the 13th century, the House of Wisdom in Baghdad, Iraq, was once a center of learning in the medieval world. Built primarily as a library, the House became the home of ancient and modern wisdom during the Islamic Golden Age, preserving important works of scholarship from across Europe and the Middle East. Read on to explore the wonders of this lost icon of intellectual thought.

Known as *Bayt al-Hikma* in Arabic, the House of Wisdom was founded in 8th century Baghdad by Caliph Harun al-Rashid of the Abbasid dynasty. The Abbasids had come to power in Iraq with a victorious revolution in AD 750 against the Umayyad Caliphs. Under the authority of Caliph al-Mansur, the new capital moved from Damascus to Baghdad in Mesopotamia, at a time when Muslim conquests and imperial growth were beginning to foster a dynamic cultural climate. Different intellectual traditions became united under Muslim rule, including Greek learning from Europe and Alexandria, as well as that of the Persians, Indians and Sumerians in the east.

Into this melting-pot of old and new came technological developments, such as the production of paper from China. Previously, books and maps had been written on parchment, produced by a lengthy and expensive process from the skin of animals, which was still the dominant practice in Europe. Now, thanks to advances in paper production and book-binding, knowledge and ideas could be exchanged with rapidity, enabling a climate of active academic enterprise to thrive.

Caliph al-Mansur's new city of Baghdad was built with one enterprising goal in mind: to stand unrivaled, the greatest city of the medieval world. The city grew rapidly after its inception: its military strength, economic power, booming trade, cultural and intellectual dominance and dizzying wealth establishing it as the center of an empire stretching from across the East and into North Africa. It is one of the tragedies of ancient history that nothing stands today from Baghdad's early Abbasid period. However, 9th century geographer and historian Al Y'qubi described the early Baghdad as a city 'with no equal on earth, either in the Orient or the Occident,' being 'the most expensive city in area, in importance, in prosperity,' and that 'no one is better educated than their scholars.'

The House of Wisdom came into being as a library, translation institute and academy of scholars from across the empire. Beginning as a project to protect knowledge, including philosophy, astronomy, science, mathematics and literature, it quickly became, and is still considered today, a symbol of the merging and expansion of intellectual traditions from across different cultures and nations. The library grew to become the flower of the Islamic Golden Age, a period between the 7th and 13th centuries of great intellectual growth and discovery in the Islamic world.

The death in AD 809 of al-Rashid resulted in a civil war among the Abbasids, after which his son al-Mamun managed to take power after a long struggle with his half-brother. Intent on securing his rule, al-Mamun moved his official residence to Baghdad, bringing his authority and royal patronage to the House of Wisdom.

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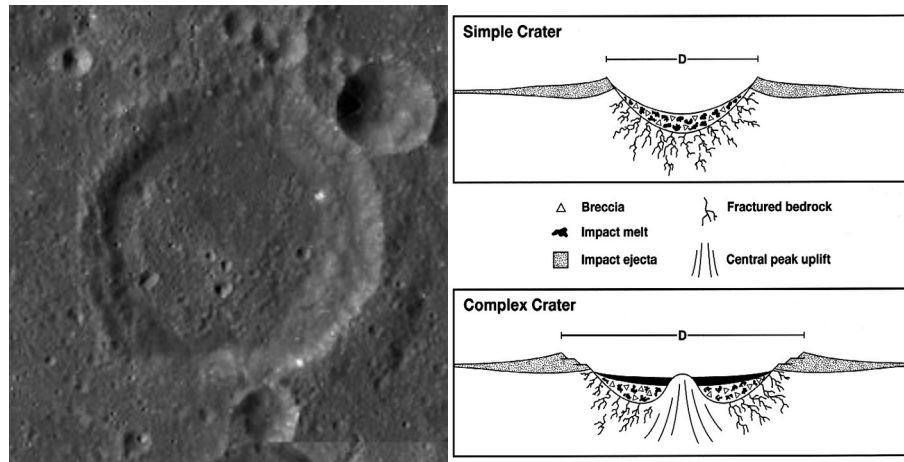
The pursuit of knowledge became a dominant feature of Abbasid society, attracting scholars and scientists from all over Europe and the Middle East to take part in this cultural birthing, including Persians and Christians. Scholarly work, particularly translation, became a hugely lucrative career, and some scholars such as Hunayn ibn Ishaq were said to earn the weight in gold of each manuscript they completed. Renowned 9th century Arab mathematician Al Khwarizmi studied in the House of Wisdom. It is his famous *Book of Restoring and Balancing*, from the Arabic *Kitab al-Jabr wa'l-muqabala*, which today gives us our term 'algebra.'

Caliph al-Mamun was also himself adept in the branches of knowledge taught at the House of Wisdom, including medicine, philosophy and astrology, and often visited the scholars there to discuss their research. At this time astrology was held in the highest esteem as a science in Arab society. The stars and planets were perceived to influence events on earth and astrology was thus carried out with the greatest attention to detail. He had an astronomical observatory built with the intention of addressing the claims of one of the most dominant voices in the ancient world, Ptolemy. A Greek scholar of the 2nd century AD at the great library of Alexandria, which was one of the exemplars for the House of Wisdom, Ptolemy's famous work of astronomy, the *Megale Syntaxis*, or 'the great composition,' exercised extraordinary influence over medieval Arab scholars, many years before he became known in the West. Better-known after its translation as the *Almagest*, the text initiated a flurry of research and commentary at the House of Wisdom which would last for centuries.

It was in 1258 that the accomplishments of the House of Wisdom and the Islamic Golden Age were brought to a cruel halt. During the Mongol invasion of Baghdad under Hulegn, grandson of Genghis Khan, the mosques, libraries, homes and hospitals of the great city were all destroyed. The family of the last Abbasid Caliph Al-Musta'sim, as well as thousands of the city's inhabitants, were slaughtered, and the extensive collection of books and manuscripts at the House of Wisdom were thrown into the Tigris. It is said that for days afterwards the river ran black with the ink of books and red with the blood of scholars. It was a tragic ending for one of the most advanced, diverse and progressive cities of the age, and an ending from which it would take Baghdad centuries to recover.

Almanon is a lunar impact crater that lies in the rugged highlands in the south-central region of the Moon. It was named after Abbasid Caliph and astronomer Al-Ma'mun. It is located to the south-southeast of Abulfeda, and to the north-northeast of the smaller crater Geber. The crater chain designated Catena Abulfeda forms a line between the south rim of Abulfeda and the north rim of Almanon, continuing for a length of about 210 kilometers to the Rupes Altai scarp.

The rim of Almanon forms a slightly distorted circle, with outward bulges to the north and southwest. The crater pair Almanon A and Almanon B is attached to the exterior of the southern rim. The interior wall is wider along the eastern side than elsewhere. Small craters belonging to the Catena Abulfeda intrude slightly into the northeast rim. The outer wall is generally worn and lacks the crispness of a younger crater, but is not significantly impacted by subsequent cratering. The interior floor is relatively flat and lacks notable features other than a few tiny craterlets.



The **Abbasid Caliphate:** *al-Khilāfah al-‘Abbāsīyah* was the third caliphate to succeed the Islamic prophet Muhammad. It was founded by a dynasty descended from Muhammad's uncle, Abbas ibn Abdul-Muttalib (566–653 CE), from whom the dynasty takes its name. They ruled as caliphs for most of the caliphate from their capital in Baghdad in modern-day Iraq, after having overthrown the Umayyad Caliphate in the Abbasid Revolution of 750 CE (132 AH). The Abbasid Caliphate first centered its government in Kufa, modern-day Iraq, but in 762 the caliph Al-Mansur founded the city of Baghdad, near the ancient Sasanian capital city of Ctesiphon. The Abbasid period was marked by reliance on Persian bureaucrats (notably the Barmakid family) for governing the territories as well as an increasing inclusion of non-Arab Muslims in the *ummah* (national community). Persian customs were broadly adopted by the ruling elite, and they began patronage of artists and scholars. ^[3] Baghdad became a center of science, culture, philosophy and invention in what became known as the Golden Age of Islam.

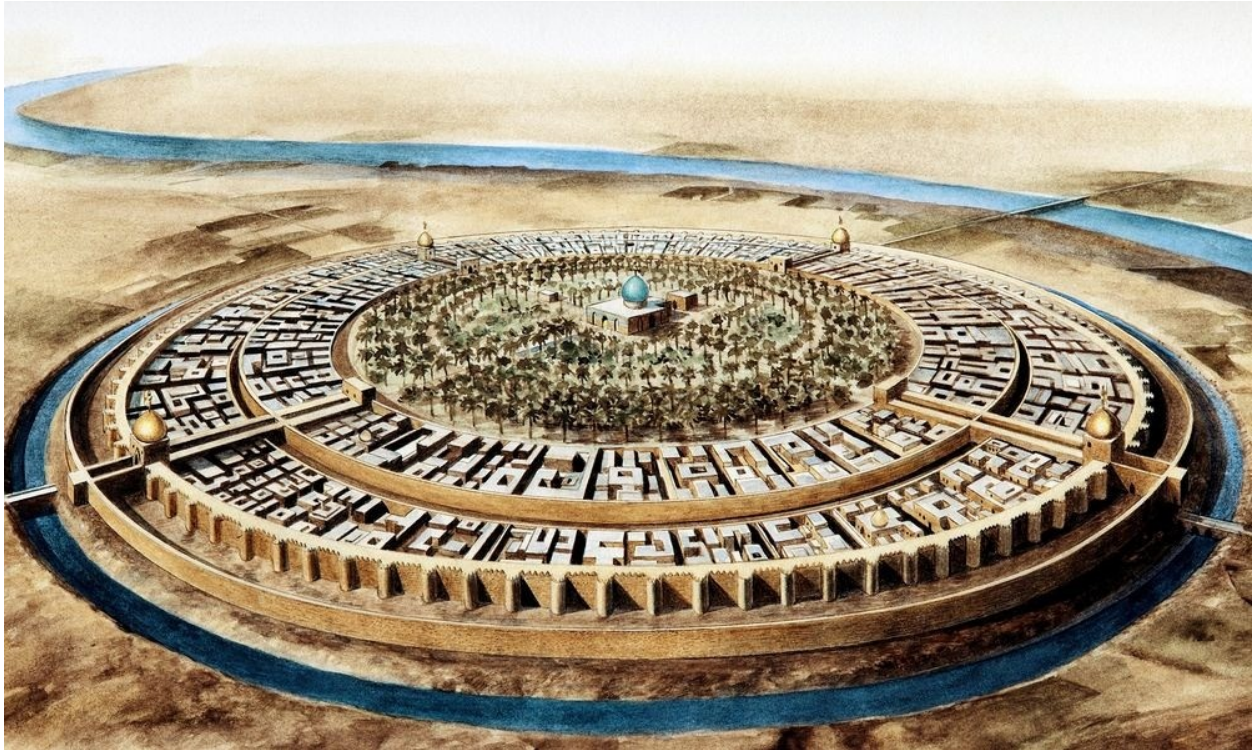
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The Man who built the House of Wisdom

Of course one cannot say that a single person developed such an outstanding Institution, yet one cannot escape the record of the contribution of Abu al-Abbas Abdallah ibn Harun al-Rashid to the creation of the House of Wisdom

Abu al-Abbas Abdallah ibn Harun al-Rashid (14 September 786 – 9 August 833), better known by his regnal name **al-Ma'mun**, was the seventh Abbasid caliph, who reigned from 813 until his death in 833. He succeeded his half-brother al-Amin after a civil war, during which the cohesion of the Abbasid Caliphate was weakened by rebellions and the rise of local strongmen; much of his domestic reign was consumed in pacification campaigns. Well educated and with a considerable interest in scholarship, al-Ma'mun promoted the Translation Movement, the flowering of learning and the sciences in Baghdad, and the publishing of al-Khwarizmi's book now known as "Algebra". He is also known for supporting the doctrine of Mu'tazilism and for imprisoning Imam Ahmad ibn Hanbal, the rise of religious persecution (*mihna*), and for the resumption of large-scale warfare with the Byzantine Empire.

Birth and Education: Abdallah, the future al-Ma'mun, was born in Baghdad on the night of the 13 to 14 September 786 CE to Harun al-Rashid and his concubine Marajil, from Badghis. On the same night, which later became known as the "night of the three caliphs", his uncle al-Hadi died and was succeeded by Ma'mun's father, Harun al-Rashid, as ruler of the Abbasid Caliphate. Marajil died soon after his birth, and Abdallah was raised by Harun al-Rashid's wife, Zubayda, herself of high Abbasid lineage as the granddaughter of Caliph al-Mansur (r. 754–775). As a young prince, Abdallah received a thorough education: al-Kisa'i tutored him in classical Arabic, Abu Muhammad al-Yazidi in *adab*, and he received instruction in music and poetry. He was trained in *fiqh* by al-Hasan al-Lu'lu'i, showing particular excellence in the Hanafi school, and in the *hadith*, becoming himself active as a transmitter. According to M. Rekaya, "he was distinguished by his love of knowledge, making him the most intellectual caliph of the Abbasid family, which accounts for the way in which his caliphate developed".

Although Abdallah was the oldest of his sons, in 794 Harun named the second-born Muhammad, born in April 787 to Zubayda, as the first in line of succession. This was the result of family pressure on the Caliph, reflecting Muhammad's higher birth, as both parents descended from the Abbasid dynasty; indeed, he remained the only Abbasid caliph to claim such descent. Muhammad received the oath of allegiance (*bay'ah*) with the name of al-Amin ("The Trustworthy"), first in Khurasan by his guardian, the Barmakid al-Fadl ibn Yahya, and then in Baghdad. Abdallah was recognized as second heir only after entering puberty, in 799, under the name al-Ma'mun ("The Trusted One"), with another Barmakid, Ja'far ibn Yahya, as his guardian. At the same time, a third heir, al-Qasim, named al-Mu'tamin, was appointed, under the guardianship of Abd al-Malik ibn Salih.

These arrangements were confirmed and publicly proclaimed in 802, when Harun and the most powerful officials of the Abbasid government made the pilgrimage to Mecca. Al-Amin would succeed Harun in Baghdad, but al-

Ma'mun would remain al-Amin's heir and would additionally rule over an enlarged Khurasan. This was an appointment of particular significance, as Khurasan had been the starting-point of the Abbasid Revolution which brought the Abbasids to power, and retained a privileged position among the Caliphate's provinces. Furthermore, the Abbasid dynasty relied heavily on Khurasanis as military leaders and administrators. Many of the original Khurasani Arab army (*Khurasaniyya*) that came west with the Abbasids were given estates in Iraq and the new Abbasid capital, Baghdad, and became an elite group known as the *abnā' al-dawla* ("sons of the state/dynasty"). This large-scale presence of an Iranian element in the highest circles of the Abbasid state, with the Barmakid family as its most notable representatives, was certainly a factor in the appointment of al-Ma'mun, linked through his mother with the eastern Iranian provinces, as heir and governor of Khurasan. The stipulations of the agreement, which were recorded in detail by the historian al-Tabari, accorded al-Mamun's Khurasani viceroyalty extensive autonomy. However, modern historians consider that these accounts may have been distorted by later apologists of al-Ma'mun in the latter's favour. Harun's third heir, al-Mu'tamin, received responsibility over the frontier areas with the Byzantine Empire in Upper Mesopotamia and Syria.

Very quickly, the latent rivalry between the two brothers had important repercussions: almost immediately after the court returned to Baghdad in January 803, the Abbasid elites were shaken by the abrupt fall of the Barmakid family from power. On the one hand, this event may reflect the fact that the Barmakids had become indeed too powerful for the Caliph's liking, but its timing suggests that it was tied to the succession issue as well: with al-Amin siding with the *abnā'* and al-Ma'mun with the Barmakids, and the two camps becoming more estranged every day, if al-Amin was to have a chance to succeed, the power of the Barmakids had to be broken.

Al-Fadl ibn Sahl, a Kufan of Iranian origin whose father had converted to Islam and entered Barmakid service, replaced Ja'far ibn Yahya as al-Ma'mun's tutor. In 806 he also became al-Ma'mun's secretary (*katib*), an appointment that marked him out as the chief candidate for the vizierate should al-Ma'mun succeed to the throne. In 804, al-Ma'mun married his cousin, Umm Isa, a daughter of the Caliph al-Hadi (r. 785-786). The couple had two sons, Muhammad al-Asghar and Abdallah.

The years after the fall of the Barmakids saw an increasing centralization of the administration and the concomitant rise of the influence of the *abnā'*, many of whom were now dispatched to take up positions as provincial governors and bring these provinces under closer control from Baghdad. This led to unrest in the provinces, especially Khurasan, where local elites had a long-standing rivalry with the *abnā'* and their tendency to control of the province (and its revenues) from Iraq. The harsh taxation imposed by a prominent member of the *abnā'*, Ali ibn Isa ibn Mahan, even led to a revolt under Rafi ibn al-Layth, which eventually forced Harun

himself, accompanied by al-Ma'mun and the powerful chamberlain (*hajib*) and chief minister al-Fadl ibn al-Rabi, to travel to the province in 808. Al-Ma'mun was sent ahead with part of the army to Marv, while Harun stayed at Tus, where he died on 24 March 809.



Gold dinar of al-Ma'mun, minted in Egypt in 830/1

Abbasid Civil War or *Fourth Fitna*

There were disturbances in Iraq during the first several years of al-Ma'mun's reign, while the caliph was in Merv. On 13 November 815, Muhammad ibn Ja'far al-Sadiq (Al-Dibaj) claimed the Caliphate for himself in Mecca. He was defeated and he quickly abdicated asserting that he had only become caliph on news that al-Ma'mun had died. Lawlessness in Baghdad led to the formation of neighborhood watches.

In A.H. 201 (817 AD) al-Ma'mun forced Ali ar-Rida, also known as Imam Reza, to move from Madina to Merv. Imam Reza, the eighth descendant of Muhammad, was named his heir. This was not easily accepted by the Abbasid leaders but was widely seen as a political move by al-Ma'mun since he was fearful of the widespread sympathy towards the Ahl al-Bayt. Al-Ma'mun's plan was to keep watch over Imam Reza. However, his plans did not succeed due to the growing popularity of the Imam in Merv. People from all over the Muslim world traveled to meet the prophet's grandson and listen to his teachings and guidance.

After a debate al-Ma'mun had set up with the greatest scholars of the world's religions to humiliate the Imam, the victorious Imam informed al-Ma'mun that his grand vizier, Fazl ibn Sahl, had not been informing him of everything. In Baghdad, the people believed that al-Ma'mun was unseated, due to rumors spread by Fazl ibn Sahl, and so gave their allegiance to al-Ma'mun's uncle Ibrahim ibn Mehdi. Al-Ma'mun set out for Baghdad on 12 April 818. At Tus, he stopped to visit his father's grave. Al-Ma'mun was troubled by the widespread support for Imam Reza, a descendant of the prophet Muhammad, and the betrayal of his grand vizier. With the aim of gaining Abbasid support and the establishment of a new base for his rule in Baghdad, al-Ma'mun went on to dispose of Ali Ar-Rida by administering poison, and arranging the murder of Fazl ibn Sahl. On the last day of Safar in 203 AH, Imam Reza died, and was buried thereafter beside Al-Ma'mun's father Hārūn al-Rashid. Following the death of Imam Reza, a great revolt

took place in Khurasan. Al-Ma'mun tried unsuccessfully to absolve himself of the crime.

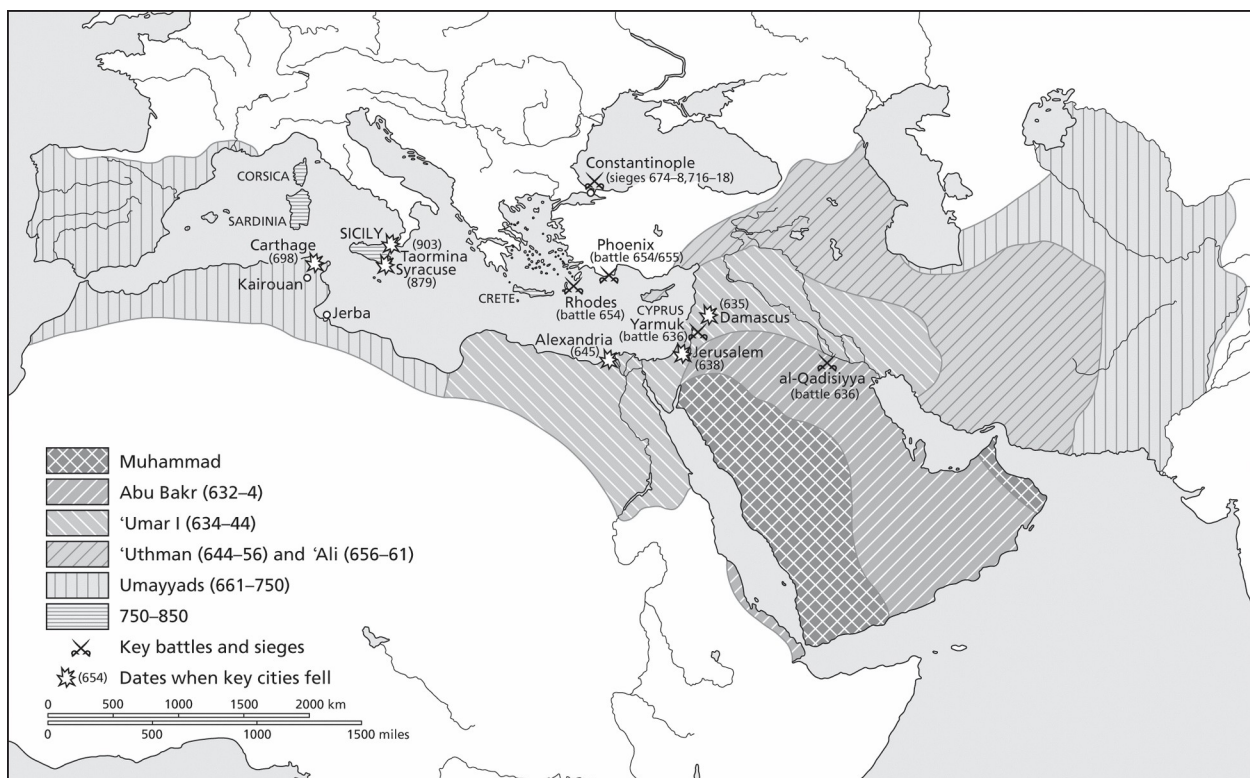
Succession: In 802 Harun al-Rashid, father of al-Ma'mun and al-Amin, ordered that al-Amin succeed him, and al-Ma'mun serve as governor of Khurasan and as caliph after the death of al-Amin. In the last days of Harun's life his health was declining and saw in a dream Musa ibn Jafar sitting in a chamber praying and crying, which made Harun remember how hard he had struggled to establish his own caliphate. He knew the personalities of both his sons and decided that for the good of the Abbasid dynasty, al-Ma'mun should be caliph after his death, which he confided to a group of his courtiers. One of the courtiers, Fadl ibn Rabi', did not abide by Harun's last wishes and convinced many in the lands of Islam that Harun's wishes had not changed. Later the other three courtiers of Harun who had sworn loyalty to Harun by supporting al-Ma'mun, namely, 'Isa Jarudi, Abu Yunus, and Ibn Abi 'Umran, found loopholes in Fadl's arguments, and Fazl admitted Harun had appointed al-Ma'mun after him, but, he argued, since Harun was not in his right mind, his decision should not be acted upon. Al-Ma'mun was reportedly the older of the two brothers, but his mother was a Persian woman while al-Amin's mother was a member of the reigning Abbasid family. After al-Rashid's death in 809, the relationship between the two brothers deteriorated. In response to al-Ma'mun's moves toward independence, al-Amin declared his own son Musa to be his heir. This violation of al-Rashid's testament led to a succession struggle. Al-Amin assembled a massive army at Baghdad with 'Isa ibn Mahan at its head in 811 and invaded Khorasan, but al-Ma'mun's general Tahir ibn al-Husayn (d. 822) destroyed the army and invaded Iraq, laying siege to Baghdad in 812. In 813 Baghdad fell, al-Amin was beheaded, and al-Ma'mun became the undisputed Caliph.

Muhammad ibn Jarir al-Tabari states that al-Ma'mun entered Baghdad on 11 August 819 (v. 32, p. 95). He wore green and had others do so. Informed that compliance with this command might arouse popular opposition to the colour, on 18 August he reverted to traditional Abbasid black. While Baghdad became peaceful, there were disturbances elsewhere. In A.H. 210 (825-826 CE) Abdullah ibn Tahir al-Khurasani secured Egypt for al-Ma'mun, freeing Alexandria from Andalusians and quelling unrest. The Andalusians moved to Crete, where al-Tabari records their descendants were still living in his day (see Emirate of Crete). Abdallah returned to Baghdad in 211 Hijri (826-827 C.E.) bringing the defeated rebels with him.

Also, in 210 Hijri (825-826 CE), there was an uprising in Qum sparked by complaints about taxes. After it was quashed, the tax assessment was set significantly higher. In 212 Hijri (827-828 CE), there was an uprising in Yemen. In 214 (829-30 CE), Abu al-Razi, who had captured one Yemeni rebel, was killed by another. Egypt continued to be unquiet. Sindh was rebellious. In 216 (831-832 CE), Ghassan ibn 'Abbad subdued it. An ongoing

problem for al-Ma'mun was the uprising headed by Babak Khorramdin. In 214 Babak routed a Caliphate army killing its commander Muhammad ibn Humayd.

War: By the time al-Ma'mun became Caliph, the Arabs and the *Byzantine Empire* had settled down into border skirmishing, with Arab raids deep into Anatolia to capture booty and Christians to be enslaved. The situation changed however with the rise to power of Michael II in 820 AD. Forced to deal with the rebel Thomas the Slav, Michael had few troops to spare against a small Andalusian invasion of 40 ships and 10,000 men against Crete, which fell in 824 AD. A Byzantine counter offensive in 826 AD failed miserably. Worse still was the invasion of Sicily in 827 by Arabs of Tunis. Even so, Byzantine resistance in Sicily was fierce and not without success whilst the Arabs became quickly plagued by internal squabbles. That year, the Arabs were expelled from Sicily but they were to return.





The Byzantine embassy of John the Grammarian in 829 to Ma'mun (depicted left) from Theophilos (depicted right)

In 829, Michael II died and was succeeded by his son Theophilos. Theophilos experienced mixed success against his Arab opponents. In 830 AD the Arabs returned to Sicily and, after a year-long siege, took Palermo. For the next 200 years they were to remain there to complete their conquest, which was never short of Christian counters. Al-Ma'mun meanwhile launched an invasion of Anatolia in 830 AD, taking a number of Byzantine forts; he spared the surrendering Byzantines. Theophilos, for his part, captured Tarsus in 831. The next year, learning the Byzantines had killed some sixteen hundred people, al-Ma'mun returned. This time some thirty forts fell to the Caliphate's forces, with two Byzantine defeats in Cappadocia.

Theophilos wrote to al-Ma'mun. The Caliph replied that he carefully considered the Byzantine ruler's letter, noticed it blended suggestions of peace and trade with threats of war and offered Theophilos the options of accepting the shahada, paying tax or fighting. Al-Ma'mun made preparations for a major campaign, but died on the way while leading an expedition in Tyana.



Abbasid Caliph Al-Ma'mun sends an envoy to Theophilos

Al-Ma'mun's relations with the Byzantines are marked by his efforts in the translation of Greek philosophy and science. Al-Ma'mun gathered scholars of many religions at Baghdad, whom he treated magnificently. He sent an emissary to the Byzantine Empire to collect the most famous manuscripts there, and had them translated into Arabic. As part of his peace treaty with the Byzantine Emperor, Al-Ma'mun was to receive a number of Greek manuscripts annually, one of these being Ptolemy's astronomical work, the *Almagest*.

Al-Ma'mun conducted, in the plains of Mesopotamia, two astronomical operations intended to determine the value of a terrestrial degree. The crater Almanon on the moon is named in recognition of his contributions to astronomy.

Al-Ma'mun's record as an administrator is also marked by his efforts toward the centralization of power and the certainty of succession. The *Bayt al-Hikma*, or House of Wisdom, was established during his reign. The *ulama* emerged as a real force in Islamic politics during al-Ma'mun's reign for opposing the *mihna*, which was initiated in 833, four months before he died.

Michael Hamilton Morgan in his book "Lost History" describes al-Ma'mun as a man who 'Loves Learning.' al-Ma'mun once defeated a Byzantine Emperor in a battle and as a tribute, he asked for a copy of *Almagest*, Ptolemy's Hellenistic compendium of thoughts on astronomy written around A.D. 150

The 'mihna', is comparable to Medieval European inquisitions in the sense that it involved imprisonment, a religious test, and a loyalty oath. The people subject to the *mihna* were traditionalist scholars whose social influence was uncommonly high. Al-Ma'mun introduced the *mihna* with the intention to centralize religious power in the caliphal institution and test the loyalty of his subjects. The *mihna* had to be undergone by elites, scholars, judges and other government officials, and consisted of a series of questions relating to theology and faith. The central question was about the

createdness of the Qur'an, if the interrogatee stated he believed the Qur'an to be created, rather than coeternal with God, he was free to leave and continue his profession.

The controversy over the *mihna* was exacerbated by al-Ma'mun's sympathy for Mu'tazili theology and other controversial views. Mu'tazili theology was deeply influenced by Aristotelian thought and Greek rationalism, and stated that matters of belief and practice should be decided by reasoning. This opposed the traditionalist and literalist position of Ahmad ibn Hanbal and others, according to which everything a believer needed to know about faith and practice was spelled out literally in the Qur'an and the Hadith. Moreover, the Mu'tazilis stated that the Qur'an was created rather than coeternal with God, a belief that was shared by the Jahmites and parts of Shi'a, among others, but contradicted the traditionalist-Sunni opinion that the Qur'an and the Divine were coeternal.

During his reign, alchemy greatly developed. Pioneers of the science were Jabir Ibn Hayyan and his student Yusuf Lukwa, who was patronized by Al-Ma'mun. Although he was unsuccessful in transmuting gold, his methods greatly led to the patronization of pharmaceutical compounds.^[18]

Caliph Al-Ma'mun was a pioneer of cartography having commissioned a world map from a large group of astronomers and geographers. The map is presently in an encyclopedia in Topkapi Sarai, a Museum in Istanbul. The map shows large parts of the Eurasian and African continents with recognizable coastlines and major seas. It depicts the world as it was known to the captains of the Arab sailing dhows which used the monsoon wind cycles to trade over vast distances (by the 9th century, Arab sea traders had reached Guangzhou, in China). The maps of the Greeks and Romans reveal a good knowledge of closed seas like the Mediterranean but little knowledge of the vast ocean expanses beyond.

Although al-Mahdi had proclaimed that the caliph was the protector of Islam against heresy, and had also claimed the ability to declare orthodoxy, religious scholars in the Islamic world believed that al-Ma'mun was overstepping his bounds in the *mihna*. The penalties of the *mihna* became increasingly difficult to enforce as the *ulema* became firmer and more united in their opposition. Although the *mihna* persisted through the reigns of two more caliphs, al-Mutawakkil abandoned it in 851.

The *ulema* and the major Islamic law schools became truly defined in the period of al-Ma'mun, and Sunnism—as a religion of legalism—became defined in parallel. Doctrinal differences between Sunni and Shi'a Islam began to become more pronounced. Ibn Hanbal, the founder of the Hanbali legal school, became famous for his opposition to the *mihna*. Al-Ma'mun's simultaneous opposition and patronage of intellectuals led to the emergence of important dialogues on both secular and religious affairs, and the *Bayt al-Hikma* became an important center of translation for Greek and other ancient texts into Arabic. This Islamic renaissance spurred the

rediscovery of Hellenism and ensured the survival of these texts into the European renaissance.

Al-Ma'mun had been named governor of Khurasan by Harun, and after his ascension to power, the caliph named Tahir as governor for his military services in order to assure his loyalty. It was a move that al-Ma'mun soon regretted, as Tahir and his family became entrenched in Iranian politics and became increasingly powerful in the state, contrary to al-Ma'mun's desire to centralize and strengthen Caliphal power. The rising power of the Tahirid family became a threat as al-Ma'mun's own policies alienated them and his other opponents.

Al-Ma'mun also attempted to divorce his wife during his reign, who had not borne him any children. His wife hired a Syrian judge of her own before al-Ma'mun was able to select one himself; the judge, who sympathized with the caliph's wife, refused the divorce. Following al-Ma'mun's experience, no further Abbasid caliphs were to marry, preferring to find their heirs in the harem.

Al-Ma'mun, in an attempt to win over the Shi'a Muslims to his camp, named the eighth Imam, Ali ar-Rida, his successor, if he should outlive al-Ma'mun. Most Shi'ites realized, however, that ar-Rida was too old to survive him and saw al-Ma'mun's gesture as empty; indeed, Al-Ma'mun poisoned Ali ar-Rida who then died in 818. The incident served to further alienate the Shi'ites from the Abbasids, who had already been promised and denied the Caliphate by al-'Abbas.

The Abbasid empire grew somewhat during the reign of al-Ma'mun. Hindu rebellions in Sindh were put down, and most of Afghanistan was absorbed with the surrender of the leader of Kabul. Mountainous regions of Iran were brought under a tighter grip of the central Abbasid government, as were areas of Turkestan.

In 832, al-Ma'mun led a large army into Egypt to put down the last great Bashmurite revolt.^[20] While there he ordered the breaching of the Great Pyramid of Giza looking for knowledge and treasure. He entered the pyramid by tunneling into the Great Pyramid near where tradition located the original entrance. The resulting passage, which was later named the "Robbers' Tunnel" is the path along which tourists enter the pyramid today.

Al-Tabari (v. 32, p. 231) describes al-Ma'mun as of average height, light complexion, handsome and having a long beard losing its dark colour as he aged. He relates anecdotes concerning the caliph's ability to speak concisely and eloquently without preparation, his generosity, his respect for Muhammad and religion, his sense of moderation, justice and his love of poetry and his insatiable passion for physical intimacy.

Ibn Abd Rabbih in his *Unique Necklace* (al-'iqd al-Farid), probably drawing on earlier sources, makes a similar description of al-Ma'mun, whom he described as of light complexion and having slightly blond hair, a long thin beard, and a narrow forehead.

Al-Ma'mun had one official wife, Umm Isa, a daughter of his uncle al-Hadi (r. 785–786), whom he married when he was eighteen years old. They had two sons, Muhammad al-Asghar, and Abdallah. Al-Ma'mun had also numerous concubines. One of them, Sundus, bore him five sons, among whom was al-Abbas, who rose to become a senior military commander at the end of al-Ma'mun's reign and a contender for the throne.

Al-Tabari (v.32, pp. 224–231) recounts how Al-Ma'mun was sitting on the river bank telling those with him how splendid the water was. He asked what would go best with this water and was told a specific kind of fresh dates. Noticing supplies arriving, he asked someone to check whether such dates were included. As they were, he invited those with him to enjoy the water with these dates. All who did this fell ill. Others recovered, but Al-Ma'mun died. He encouraged his successor to continue his policies and not burden the people with more than they could bear. This was on 9 August 833.

Al-Ma'mun died near Tarsus. The city's major mosque (Tarsus Grand Mosque), contains a tomb reported to be his. He was not succeeded by his son, Al-Abbas ibn al-Ma'mun, but by his half-brother, al-Mu'tasim.



Fals (Copper Coin) of Al-Ma'mun. 199–218 AH /813–833 AD. Fals, al-Quds (Jerusalem) mint. Dated AH 217 (AD 832/3) Under the Umayyad Caliphate Jerusalem was known by its Roman name Iliya Filastin (Arabic names for Palestine), but from the time of Caliph al Mamun it was given the Islamic religious name al-Quds (meaning *holiness or sanctity*).

Al-Ma'mun's religious beliefs are a subject of controversy, to the point where other Abbasids, as well as later Islamic scholars, called him a Shia Muslim. For instance, Sunni scholars al-Dhahabi, Ibn Kathir, Ibn

Khaldun and al-Suyuti explicitly held the belief that al-Ma'mun was a Shi'a. The arguments for his alleged Shi'ism include that, in 816/817, when Ali al-Ridha, the Prophet's descendant, refused designation as sole Caliph, Al-Ma'mun officially designated him as his appointed successor. The official Abbasid coins were minted showing Al-Ma'mun as a Caliph and al-Ridha as his successor. Other arguments were that: the Caliphate's official black colour was changed to the Prophetic green; in 210 AH/825 CE, he wrote to Qutham b. Ja'far, the ruler of Medina, to return Fadak to the descendants of Muhammad through his daughter, Fatima; he restored *nikah mut'ah*, previously banned by Umar ibn al-Khattab, but practiced under Muhammad and Abu Bakr; in 211 AH/826 CE, al-Ma'mun expressed his antipathy to those who praised Mu'awiya ibn Abi Sufyan, and reportedly punished such people; in 212 AH/827 CE, al-Ma'mun announced the superiority of Ali ibn Abu Talib over Abu Bakr and 'Umar b. al-Khattab; in 833 CE, under the influence of Mu'tazila rationalist thought, he initiated the *mihna* ordeal, where he accepted the Shia argument that the Quran was created at some point over the Sunni belief that the Book was coeternal with God.

However, mainstream Shi'ite belief is that al-Ma'mun was responsible for Ali al-Ridha's poisoning and eventual death in 818 CE. In the ensuing power struggle, other Abbasids sought to depose Ma'mun in favor of Ibrahim ibn al-Mahdi, Ma'mun's uncle; therefore, getting rid of al-Ridha was the only realistic way of retaining united, absolute, unopposed rule. Al-Ma'mun ordered that al-Ridha be buried next to the tomb of his own father, Harun al-Rashid, and showed extreme sorrow in the funeral ritual and stayed for three days at the place. Muhammad al-Jawad, Ali al-Ridha's son and successor, lived unopposed and free during the rest of Al-Ma'mun's reign (till 833 CE). The Caliph summoned al-Jawad to Baghdad in order to marry his daughter, Ummul Fadhl. This apparently provoked strenuous objections by the Abbasids. According to Ya'qubi, al-Ma'mun gave al-Jawad one hundred thousand *dirham* and said, "Surely I would like to be a grandfather in the line of the Apostle of God and of Ali ibn Abu Talib."

STRUCTURE OF THE HOUSE OF WISDOM



After the spread of Islamic faith, peoples were very attentive to gain knowledge and to participate in the life of thoughts, as a result libraries had emerged to reflect the loftiness of the intellectual life during the second, third until the seventh century AH (*after hijrah*) when libraries started to vanish. Libraries represented new reality for Muslims and new passion towards the human knowledge and education (Mohammad Ali, 1980).

The Abbasids attained their most sparkling period of intellectual and political life soon after the caliphate was establishment. The Caliphate reached its prime during the time reigns of Hārūn al- Rashīd (149-193 AH) and his son al-Ma'mūn (170-217 AH). The Abbasid dynasty acquired a halo in popular imagination becoming the most celebrated in the history of Islam due to the unparalleled intellectual awakening that culminated the al- al-Ma'mūn's patronage. The house of wisdom was one of the leading libraries that distinguished the Abbasid times, it opened its doors for researchers, scholars and leaders. Bayt al-Hikmah was the preferable destination for intellectuals because it offered everything they needed including hall for reading, classrooms, divisions of binding, translating, authoring, map making etc. In the Abbasid era, a new interest in extending the study of Greek science had arisen. At that time, there was a vast amount of untranslated ancient Greek literature pertaining to philosophy, mathematics, natural science, and medicine. This valuable information was only accessible to a very small minority of Middle Eastern scholars who knew the Greek language; the need for an organized translation movement was urgent.

In time, Hunayn ibn Ishaq became arguably the chief translator of the era, and laid the foundations of Islamic medicine. In his lifetime, ibn Ishaq translated 116 works, including Plato's *Timaeus*, Aristotle's *Metaphysics*, and the Old Testament, into Syriac and Arabic. Ibn Ishaq also produced 36 of his own books, 21 of which covered the field of medicine. His son Ishaq, and his nephew Hubaysh, worked together with him at times to help translate. Hunayn ibn Ishaq is known for his translations, his method of translation, and his contributions to medicine. He has also been suggested by François Viré to be the true identity of the Arabic falconer Moamyn, author of *De Scientia Venandi per Aves*. Hunayn Ibn Ishaq was a translator at the House of Wisdom, Bayt al-Hikma, where he received his education. In the West, another name he is known by his Latin name, Joannitius. Building empires is not what they were building towards, but rather scholars preferred to move towards building a civilization. It was the translations that came from administrative and legal materials gathered that lead to understanding of how to build up Arabic as the new official language

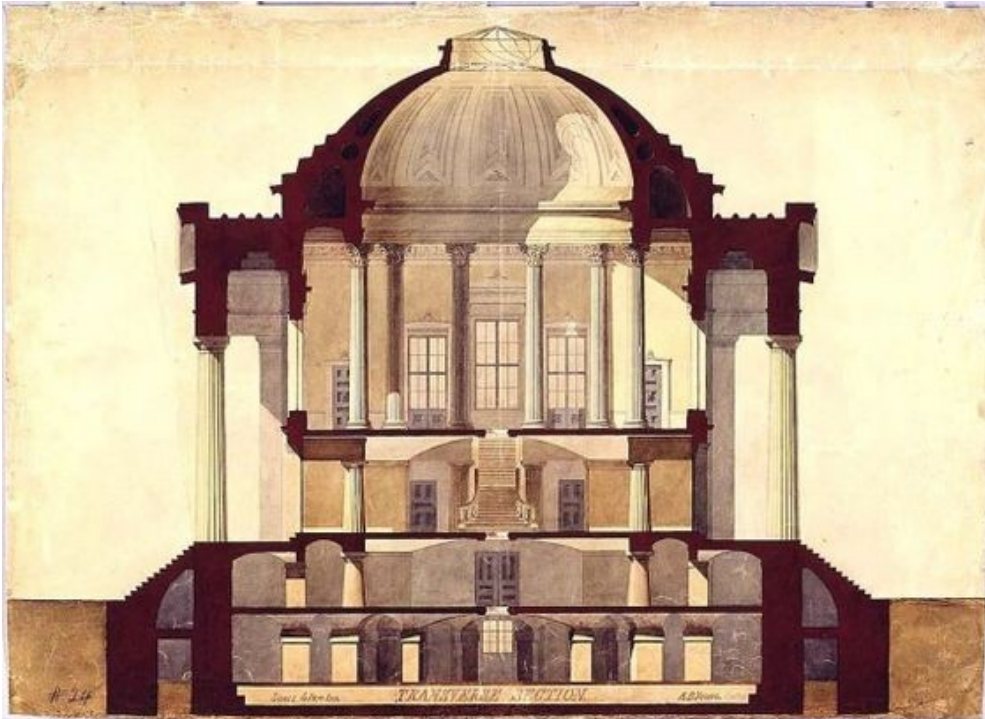
The location of the House of Wisdom (Bayt al-Hikmah) and its architectural design; There has not been enough information about the place of house of wisdom, references have spoken about Bay al-Hikmah fairly but they have not said much about its location. According to the norms the closet of books should be part of the palace just like the Cordoba Place and the palace of the Fatimid caliph Al-'Aziz Billah, and palaces of the kings of India and Persia

Independent Entity:(149-193 AH), it was a separate house (Dar) within

the palace of caliphs, and some historians said that it was an attached large room from the outside. However when the number of translated and authored books has increased in the reign of Al-Ma'mūn (170-218 AD) the house became a large building with a big number of halls and room for translators, authors, scientists, and readers. As a result the library was relocated to Al Rusafa that was the half of Baghdad on the eastern side of the river Tigris and a new Astronomical Observatory has been appended to the new relocated library.(Amin, 1963).

As for the house of wisdom's architecture. Mahmud Ahmad Derwich has found a suitable architectural planning for Bayt al-Hikmah through his studies on the golden castle constructed by Al-Mansur. The house of wisdom composed of a yard surrounded by halls of two floors from its four sides, it was headed by a penthouse on a row of pillars. In the middle of every side among the four sides of the yard there were halls topped by semi-cylindrical dome of 25 cubit. The main hall leads to a square shape room above it there was a big dome with 80 cubit high, the main hall also has a statue of knight holding a spear that spins with the spear. The ground floor contained a number of divisions for book closets and sections for translating, authoring, copying, binding, reading as well as studying in all subjects of knowledge, sciences and literature, as for the upper floor it was devoted to residents from authors, translators, students and employees.(Ghanima, 1953).





Alexandria

Library

It is believed that the house of wisdom was part of the palace during the time of Al-Rashid



Pergamum Library and the one at Alexandra (RIGHT)

The need for the preservation of the Quran and the Traditions of Muhammad is what primarily inspired Muslims to develop collections of writings. Mosques that were playing a central role in Muslims' day-to-day life gradually welcomed incorporated libraries that stored and preserved all types of knowledge, from devotional books like Quran to books on philosophy, geography and science.

The centrality of the Qur'ān as the prototype of the written word in Islam bears significantly on the role of books within its intellectual tradition and educational system. An early impulse in Islam was to manage reports of events, key figures and their sayings and actions. Thus, "the onus of being the last 'People of the Book' engendered an ethos of librarianship" early on and the establishment of important book repositories throughout the Muslim world have occurred ever since.

By the 8th century China's art of papermaking was acquired by Iranians and then developed across the whole Muslim world. From the art, Muslims developed papermaking into an industry. As a result of this technical enhancement, the books were more easily manufactured and they were more broadly accessible. Coincided with the encouragement of science and

a breakthrough in the translation movement, public and private libraries started to boost all around Islamic lands. "libraries (royal, public, specialized, private) had become common and bookmen (authors, translators, copiers, illuminators, librarians, booksellers' collectors) from all classes and sections of society, of all nationalities and ethnic backgrounds, vied with each other in the production and distribution of books."

A series of outstanding libraries within the Islamic territories were founded and flourished alongside the Islam spread. Abbasid Caliphs were true patrons of learning and collection of ancient and contemporary literature. This genuine enthusiasm actualized as exceptionally fine libraries in Baghdad, a ruling heart of Islamic lands. The Caliphs' generous support for retrieving, copying and collecting the resources flourished all sorts of expertise associated with books. The emergence of theological schools, later on, multiplied the libraries. These schools that were called *Dar al Ilm*, *Madrasa* or *House of Knowledge* were each endowed by Islamic sects with the purpose of representing their tenets as well as promoting the dissemination of knowledge. Rich libraries were inseparable components of 'Houses of knowledge'. The Nizamiyeh, founded by Nizam al Mulk, and Mustansiriyeh Madarsa, founded by al Mustansir, were two most renowned and popular schools which attracted passionate students all across Muslim lands.

Transformation: Through these major knowledge expansion, libraries transformed into vibrant centers of the Islamic communities. These knowledge sharing centers were being attended constantly by varied patrons from mature scholars and enthusiastic students to poets and courtiers. Major libraries often employed translators and copyists in large numbers, in order to render into Arabic the bulk of the available Persian, Greek, Roman and Sanskrit non-fiction and the classics of literature. At the time libraries were the place that books and manuscripts were collected, read, copied, reproduced and borrowed by students, masters and even ordinary people. The acquisition of new resources could comprise range of procedures with bequest, *waqf*, as the major contributor. Based on this well-grounded tradition, many scholars and men of wealth bequeathed their book collections to the mosques, shrines, libraries and schools through which their private collection would be not only properly preserved but also made accessible to the whole community.

Passion for Knowledge in the Islamic world: Let us not forget that education was important for every Muslim society as the Prophet made it incumbent on all Muslims. However, the issue of what category of knowledge is permitted for Muslims, the method for imparting this knowledge, and what to impart (content) are arguably the main challenges in Islamic education.

Many Muslim scholars have looked at the concept of knowledge from various perspectives. Burhan al-Din or Burhan al-Islam al-Zarnuji also

spelled az-Zarnuji (d. 620 AH/1223 CE) was a Muslim scholar and the author of the celebrated pedagogical work *Ta'lim al-Muta'allim-Ṭarīq at-Ta'allum* (*Instruction of the Student: The Method of Learning*). In his monumental work, *Ta'lim Al-Muta'allim*, the classical Muslim scholar, Al-Zarnūjī, expounds the basic principles of education in Islam, which, indeed, have been used as the teaching methodology by many scholars throughout the Muslim world. Using content analysis, this article evaluates the concept of knowledge and its imperatives in Islam from the perspective of Al-Zarnūjī. It was found that Al-Zarnūjī classified knowledge into two main categories. One is perceived as the core of society's survival and is thus seen as binding on the entire society. This is known as *farḍu kifāyah*. The other is individually required and is called *farḍu 'ayn*. He argues that both should be guided by the Islamic religious values. Therefore, Al-Zarnūjī considers knowledge as a means for advancement and the perfection of the individual and the society both in this world and the hereafter. This makes his concept of knowledge inseparable from the Islamic ethical values.

If the House of Wisdom was initially built by Caliph Haround Al-Rasheed (ruled 786 – 809 CE) as a magnificent library named *Khizanat al-Hikma* (Library of Wisdom) that included manuscripts and books collected by his father and grandfather about various subjects in the arts and the sciences and in different languages it is possible that the works of Al-Zarnuji's would have influenced the rulers.



Al-Zarnuji's contribution to knowledge lies in the packaging and dissemination of the Islamic academic heritage, particularly, the methodology for teaching and learning which is relevant to all the levels of the education ladder. At the time even local rulers demonstrated their passion for knowledge by designing and developing public libraries that

could stand out in both aesthetic features and creating a space that maximizes the patrons' comfort. Al-Maqdisi, a Muslim Geographer, once got stunned by stepping into one of these well-designed libraries in Shiraz:

a complex of buildings surrounded by gardens with lakes and waterways. The buildings were topped with domes, and comprised an upper and a lower storey with a total, according to the chief official, of 360 rooms....In each department, catalogues were placed on a shelf... the rooms were furnished with carpets...

Though this flowering of Islamic learning ceased centuries later when learning began declining in the Islamic world, after many of these libraries were destroyed by Mongol invasions. Others were victim of wars and religious strife in the Islamic world. Many of those priceless manuscripts were transferred into European libraries and museums during the colonial period, a few examples of these medieval libraries, such as the libraries of Chinguetti in West Africa, remain intact and relatively unchanged.

The contents of these Islamic libraries were copied by Christian monks in Muslim/Christian border areas, particularly Spain and Sicily. From there they eventually made their way into other parts of Christian Europe. These copies joined works that had been preserved directly by Christian monks from Greek and Roman originals, as well as copies Western Christian monks made of Byzantine works. The resulting conglomerate libraries are the basis of every modern library today.

With the construction of the House of Wisdom, the Abbasid Caliph al Ma'mun wanted to have a place to gather world knowledge from Muslim and non-Muslim educators. Hunayn ibn Ishaq was one of the most well-known translators at the institution and was called "the sheikh of the translators, as he mastered the four principal languages of the time: Greek, Persian, Arabic, and Syriac. He was able to translate compositions on philosophy, astronomy, mathematics, medicine, and even in subjects such as magic and oneiromancy. Nonetheless, none of his extant translations credit the House of Wisdom, which questions the legitimacy of whether this place actually was the origin of the Translation Movement. In the Abbasid era, a new interest in extending the study of Greek science had arisen. At that time, there was a vast amount of untranslated ancient Greek literature pertaining to philosophy, mathematics, natural science, and medicine. This valuable information was only accessible to a very small minority of Middle Eastern scholars who knew the Greek language; the need for an organized translation movement was urgent.

In time, Hunayn ibn Ishaq became arguably the chief translator of the era, and laid the foundations of Islamic medicine.^[3] In his lifetime, ibn Ishaq translated 116 works, including Plato's *Timaeus*, Aristotle's *Metaphysics*, and the Old Testament, into Syriac and Arabic. Ibn Ishaq also produced 36

of his own books, 21 of which covered the field of medicine. His son Ishaq, and his nephew Hubaysh, worked together with him at times to help translate. Hunayn ibn Ishaq is known for his translations, his method of translation, and his contributions to medicine. He has also been suggested by François Viré to be the true identity of the Arabic falconer Moamyn, author of *De Scientia Venandi per Aves*. Hunayn Ibn Ishaq was a translator at the House of Wisdom, Bayt al-Hikma, where he received his education. In the West, another name he is known by his Latin name, Joannitius. Building empires is not what they were building towards, but rather scholars preferred to move towards building a civilization. It was the translations that came from administrative and legal materials gathered that lead to understanding of how to build up Arabic as the new official language

Born-809 AD, Az-Hira



Died-873 AD

Academic background&Academic work

Era-Islamic Golden Age

Main interests-

Translation, Ophthalmology, Philosophy, Religion, Arabic grammar

Notable works-*Book of the Ten Treatises of the Eye*

Influenced-Ishaq ibn Hunayn

Some of Hunayn's most notable translations were his rendering of "De materia Medica", a pharmaceutical handbook, and his most popular selection, "Questions on Medicine", a guide for novice physicians. Information was presented in the form of questions taken from Galen's "Art of Physic" and answers, which are based on "Summaria Alexandrinorum". For instance, Hunayn explains what the four elements and the four humors are and that medicine divides into therapy and practice and also defines health, disease, neutrality, and as well as the natural and the contranatural, and the six necessary conditions of living healthily.

Hunayn translated writings on agriculture, stones, and religion and also some of Plato's and Aristotle's works, in addition to commentaries. He also translated many medicinal texts and summaries, mainly those of Galen, such as Galen's "On Sects" and "On the Anatomy of the Veins and Arteries". His translations are some of the only remaining documents of Greek manuscripts, and he helped influence the art of medicine, and through his book al-'Ashar Maqalat fi'l-Ayn (The Ten Treatises on the Eye) he helped to expand the science of ophthalmology through theory and practice.

Many R. Duval's published works on chemistry represent translations of Hunayn's work. Also in Chemistry a book titled ['An Al-Asma'] meaning "About the Names", did not reach researchers but was used in "Dictionary of Ibn Bahloul" of the 10th century.

There have been many studies on history of Islamic libraries (Houses of Wisdom) that evolved thanks to Baghdad's house of wisdom. However there was no research that could show the impact of the House of Wisdom (Bayt al-Hikmah) in Baghdad on formation of other new Islamic libraries. Adel Abdul-Aziz Algeriani and Mawloud Mohadi show a imaginative but comprehensive idea of how the House of wisdom administered and worked in *The House of Wisdom (Bayt al-Hikmah) and Its Civilizational Impact on Islamic libraries: A Historical Perspective*.

The Funding resources of the House of (Bayt al-Hikmah)

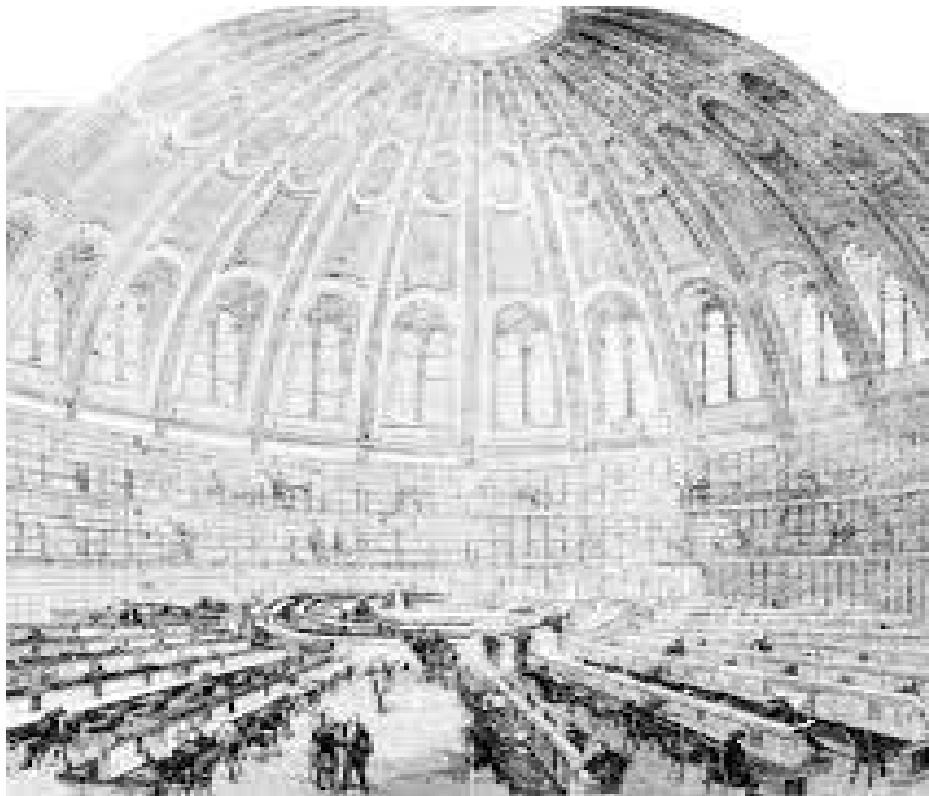
The House definitely had a lot of financial support and a large sums of money and gold were spent to fund the library. Consequently it helps us infer that there had been a special budget for the house of wisdom to secure the wages of all its employees including: translators, authors, binders, lecturers, debaters, servants...etc. the budget also compromised other facilities such as habitation, food, book, pens and papers' purchase and others. Apparently the Caliph Al-Ma'mūn must have allocated a steady resources or endowments (*Awqaf*) to be spent on the library, in so doing the caliph did not want to expose this institution to any financial shakings or crisis for he knew the harm it could occur to education and to scientific progress in such hard times therefore he secured a lasting funding from caliphs and ministers.

As for the disbursed money on the house of wisdom in the time of al-Ma'mūn it estimated nearly two hundred thousand Dinars were disbursed; some also suggesting that he(the caliph) had offered to Hunayn ibn Ishāq (194-260 AH) -a famous translator- the weight of what he translated of books in gold as a wage for the latter's contribution in enriching the house of wisdom with the ancient knowledge translated

into Arabic.

Ibn al-Nadīm has also stated in his book *Al-Firist* that some translators like Ibn al-A'sam and Thābit Ibn Qurra (221-288 AH) have a monthly allowance that exceeded five hundred Dinars (Ibn al-Nadīm, 2002).

Hunayn ibn Ishaq al-Ibadi (also Hunain or Hunein) (809–873) was an influential Arab Nestorian Christian translator, scholar, physician, and scientist. During the apex of the Islamic Abbasid era, he worked with a group of translators, among whom were Abū 'Uthmān al-Dimashqī, Ibn Mūsā al-Nawbakhti, and Thābit ibn Qurra, to translate books of philosophy and classical Greek and Persian texts into Arabic and Syriac. Hunayn ibn Ishaq was the most productive translator of Greek medical and scientific treatises in his day. He studied Greek and became known among the Arabs as the "*Sheikh of the translators*". He is the father of Arab translations. He mastered four languages: Arabic, Syriac, Greek and Persian. His translations did not require corrections; Hunayn's method was widely followed by later translators. He was originally from al-Hira, the capital of a pre-Islamic cultured Arab kingdom, but he spent his working life in Baghdad, the center of the great ninth-century Greek-into-Arabic/Syriac translation movement. His fame went far beyond his own community.



Artist's Concept

Hunayn ibn Ishaq was an Arab Nestorian Christian, born in 809, during the Abbasid period, in al-Hirah, to an ethnic Arab family. Hunayn in classical

sources is said to have belonged to the 'Ibad, thus his nisba "al-Ibadi. The 'Ibad was an Arab community composed of different Arab tribes that had once converted to Nestorian Christianity and lived in al-Hira. They were known for their high-literacy and multilingualism being fluent in Syriac, their liturgical and cultural language, besides their native-Arabic.

As a child, he learned the Syriac and Arabic languages. Although al-Hira was known for commerce and banking, and his father was a pharmacist, Hunayn went to Baghdad in order to study medicine. In Baghdad, Hunayn had the privilege to study under renowned physician Yuhanna ibn Masawayh; however, Hunayn's countless questions irritated Yuhanna, causing him to scold Hunayn and forcing him to leave. Hunayn promised himself to return to Baghdad when he became a physician. He went abroad to master the Latin language. On his return to Baghdad, Hunayn displayed his newly acquired skills by reciting the works of Homer and Galen. In awe, ibn Masawayh reconciled with Hunayn, and the two started to work cooperatively.

Hunayn was extremely motivated in his work to master Greek studies, which enabled him to translate Greek texts into Syriac and Arabic. The Abbasid Caliph al-Mamun noticed Hunayn's talents and placed him in charge of the House of Wisdom, the Bayt al Hikmah. The House of Wisdom was an institution where Greek works were translated and made available to scholars. (Sylvain Gougenheim argued, though, that there is no evidence of Hunayn being in charge of the Bayt al Hikmah) The caliph also gave Hunayn the opportunity to travel to Byzantium in search of additional manuscripts, such as those of Aristotle and other prominent authors.

Accomplishments: In Hunayn ibn Ishaq's lifetime, he devoted himself to working on a multitude of writings; both translations and original works.

As a writer of original work

Hunayn wrote on a variety of subjects that included philosophy, religion and medicine. In "How to Grasp Religion", Hunayn explains the truths of religion that include miracles not possibly made by humans and humans' incapacity to explain facts about some phenomena, and false notions of religion that include depression and an inclination for glory. He worked on Arabic grammar and lexicography.

Ophthalmology

Hunayn ibn Ishaq enriched the field of ophthalmology. His developments in the study of the human eye can be traced through his innovative book, "Book of the Ten Treatises of the Eye". This textbook is the first known systematic treatment of this field and was most likely used in medical schools at the time. Throughout the book, Hunayn explains the eye and its anatomy in minute detail; its diseases, their symptoms, their treatments. Hunain repeatedly emphasized that he believed the crystalline lens to be in

the center of the eye. Hunain may have been the originator of this idea. The idea of the central crystalline lens was widely believed from Hunain's period through the late 1500s. He discusses the nature of cysts and tumors, and the swelling they cause. He discusses how to treat various corneal ulcers through surgery, and the therapy involved in repairing cataracts. "Ten Treatises on Ophthalmology" demonstrates the skills Hunayn ibn Ishaq had not just as a translator and a physician, but also as a surgeon.

As a physician

Hunayn ibn Ishaq's reputation as a scholar and translator, and his close relationship with Caliph al-Mutawakkil, led the caliph to name Hunayn as his personal physician, ending the exclusive use of physicians from the Bukhtishu family. Despite their relationship, the caliph became distrustful; at the time, there were fears of death from poisoning, and physicians were well aware of its synthesis procedure. The caliph tested Hunayn's ethics as a physician by asking him to formulate a poison, to be used against a foe, in exchange for a large sum. Hunayn ibn Ishaq repeatedly rejected the Caliph's generous offers, saying he would need time to develop a poison. Disappointed, the caliph imprisoned his physician for a year. When asked why he would rather be killed than make the drug, Hunayn explained the physician's oath required him to help, and not harm, his patients. He completed many different medical works that pushed the idea of treating medicine with the practice and art of physic treatments. Some of his medical works were pulled from Greek sources such as, *Fi Awja al-Ma'idah* (On Stomach Ailments) and *al-Masail fi'l-Tibb li'l-Muta'allimin* (Questions on Medicine for Students) and having these sources to draw on keeps the original text clear.

As a translator

With the construction of the House of Wisdom, the Abbasid Caliph al Ma'mun wanted to have a place to gather world knowledge from Muslim and non-Muslim educators. Hunayn ibn Ishaq was one of the most well-known translators at the institution and was called "the sheikh of the translators, as he mastered the four principal languages of the time: Greek, Persian, Arabic, and Syriac. He was able to translate compositions on philosophy, astronomy, mathematics, medicine, and even in subjects such as magic and oneiromancy. Nonetheless, none of his extant translations credit the House of Wisdom, which questions the legitimacy of whether this place actually was the origin of the Translation Movement.

Some of Hunayn's most notable translations were his rendering of "De materia Medica", a pharmaceutical handbook, and his most popular selection, "Questions on Medicine", a guide for novice physicians. Information was presented in the form of questions taken from Galen's "Art of Physic" and answers, which are based on "Summaria Alexandrinorum". For instance, Hunayn explains what the four elements and the four humors

are and that medicine divides into therapy and practice and also defines health, disease, neutrality, and as well as the natural and the contranatural, and the six necessary conditions of living healthily.

Hunayn translated writings on agriculture, stones, and religion and also some of Plato's and Aristotle's works, in addition to commentaries. He also translated many medicinal texts and summaries, mainly those of Galen, such as Galen's "On Sects" and "On the Anatomy of the Veins and Arteries". His translations are some of the only remaining documents of Greek manuscripts, and he helped influence the art of medicine, and through his book al-'Ashar Maqalat fi'l-Ayn (The Ten Treatises on the Eye) he helped to expand the science of ophthalmology through theory and practice.

Many R. Duval's published works on chemistry represent translations of Hunayn's work. Also in Chemistry a book titled ['An Al-Asma'] meaning "About the Names", did not reach researchers but was used in "Dictionary of Ibn Bahloul" of the 10th century.

Translation techniques

In his efforts to translate Greek material, Hunayn ibn Ishaq was accompanied by his son Ishaq ibn Hunayn and his nephew Hubaysh. Hunayn would translate Greek into Syriac, and then he would have his nephew finish by translating the text from Syriac to Arabic, after which he then would seek to correct any of his partners' mistakes or inaccuracies he might find.

Unlike many translators in the Abbasid period, he largely did not try to follow the text's exact lexicon. Instead, he would try to summarize the topics of the original texts and then in a new manuscript paraphrase it in Syriac or Arabic. He also edited and redacted the available texts of technical works by comparing the information included therein with other works on similar subjects. Thus, his renditions may be seen as interpretations of medical, astronomical, and philosophical texts after researching the topics over which they range.

Selected translations

- "Kitab ila Aglooqan fi Shifa al Amraz" - This Arabic translation, related to Galen's Commentary, by Hunayn ibn Ishaq, is extant in the Library of Ibn Sina Academy of Medieval Medicine and Sciences. It is a masterpiece of all the literary works of Galen. It is part of the Alexandrian compendium of Galen's work. This manuscript from the 10th century is in two volumes that include details regarding various types of fevers (Humyat) and different inflammatory conditions of the body. More importantly, it includes details of more than 150 single and compound formulations of both herbal and animal origin. The book also provides an insight into

understanding the traditions and methods of treatment in the Greek (Unani) and Roman eras.

- De sectis
- Ars medica
- De pulsibus ad tirones
- Ad Glauconem de medendi methodo
- De ossibus ad tirones
- De musculorum dissectione
- De nervorum dissectione
- De venarum arteriumque dissectione
- De elementis secundum Hippocratem
- De temperamentis
- De facultibus naturalibus
- De causis et symptomatibus
- De locis affectis De pulsibus (four treatises)
- De typis (febrium)
- De crisibus
- De diebus decretoriis
- Methodus medendi
- Hippocrates and Dioscorides.

Works:

- Kitab Adab al-Falasifa, original Arabic lost, known in medieval translation
- Libro de Los Buenos Proverbios (Castilian Spanish)
- Sefer Musré ha-Filosofim (Book of the Morals of the Philosophers), Hebrew translation of the Judeo-Andalusian poet, Juda ben Shlomo Al-Jarisi (1170-1235).
- General History of Alfonso el Sabio (Castilian Spanish)
- Llibre de Saviesa of James of Aragon (Castilian Spanish)
- The Pseudo Seneca (Castilian Spanish)
- La Floresta de Philosophos (Castilian Spanish)
- El Victorial (Castilian Spanish)
- Bocados de Oro, taken directly from Adab al-Falasifa.(Spanish)

Other translated works

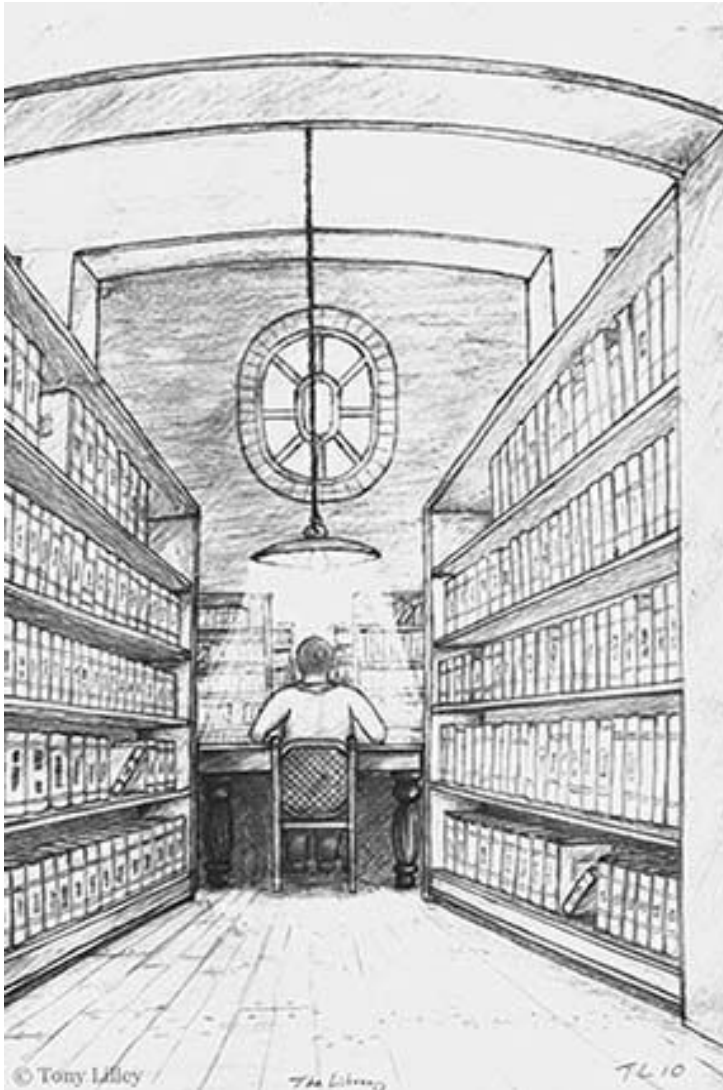
- Plato's *Republic* (Siyasah).
- Aristotle's *Categories* (Maqulas), *Physics* (Tabi'iyat) and *Magna Moralia* (Khulqiyat).
- Seven books of Galen's anatomy, lost in the original Greek, preserved in Arabic.

- Arabic version of the Old Testament from the Greek Septuagint did not survive.
- "Kitab Al-Ahjar" or the "Book of Stones".

Organizational Chart of the House of Wisdom (Bayt al-Hikmah)

Bayt al-Hikmah had its own system but sources have not stated a precise description that bind the system that the house of wisdom used to function.

Information given help us infer that the library of Bayt al-Hikmah was an institution like other institutions of that time, for there have existed terms given to specific people such as *Sāhib bayt al- hikmah*. The term *sahib* refers to the highest ranking officials of the state, for instance, *Sāhib al-Bimartsān* that stands for the director of the hospital, *Sāhib al-Arsād* or director of astronomical observatories, *sāhib al-Diwān* or director of the ministry cabinet...etc. (Al-'ish: 1991). The responsible for the house of wisdom was called *al-Khāzin* who administrated its affairs, the importance of the job requires one of the best scholars or intellectuals who had mastered various sciences and showed a distinguished cleverness.



After the library was formed and loaded with a huge number of translated and authored books, manuscripts, maps and other books from the Greek, Persian and Indian civilizations, as a result the Abbasids build a big premise with many rooms and halls that contained all the assembled literature that was divided into sections and groups in which every section or group was dedicated to a specific science collection. Each collection was stored in a partitioned shelf.. Books inside the house of wisdom were indexed accordingly the same way as in the modern libraries when there existed a clear cataloguing method of book titles and manuscripts. Some scholars have made their own index for their writings for instance, Al-Bayrūnī has listed and indexed his own books and books of Mohammad Ibn Zakariyah Al-Rāzī. Bayt al-Hikmah has had a variety of sections that included: depositing books, book lending, Copying and binding, maps and manuscripts, and finally the section of translating and book authoring. We shall explore now the library sections in details within the coming pages:

1. *The depositing of books:* This process during the times of Bayt al-Hikmah was labelled al-Takhlid, it was accomplished in different ways. Authored books were of great value for the library and for the author who had a great honour if his books are deposited in the house of wisdom, translated books were also of no lesser value and they composed the library's collection, finally, sometimes al-Takhlid is through purchasing books, for example the caliph al-Ma'mūn had assigned a group to purchase books from Roman and Greek libraries and add them to his closet of books. Dr Hasan Ahmad Mahmud has commented on the caliphs efforts in purchase process saying that "the Abbasid state held deals to purchase books and they paid high prices for them especially in the time of al-Ma'mūn who devoted himself to knowledge and fortune to reach out the intellectual treasury in foreign libraries of Constantinople and Cyprus" (Majid, 2010, p.163).

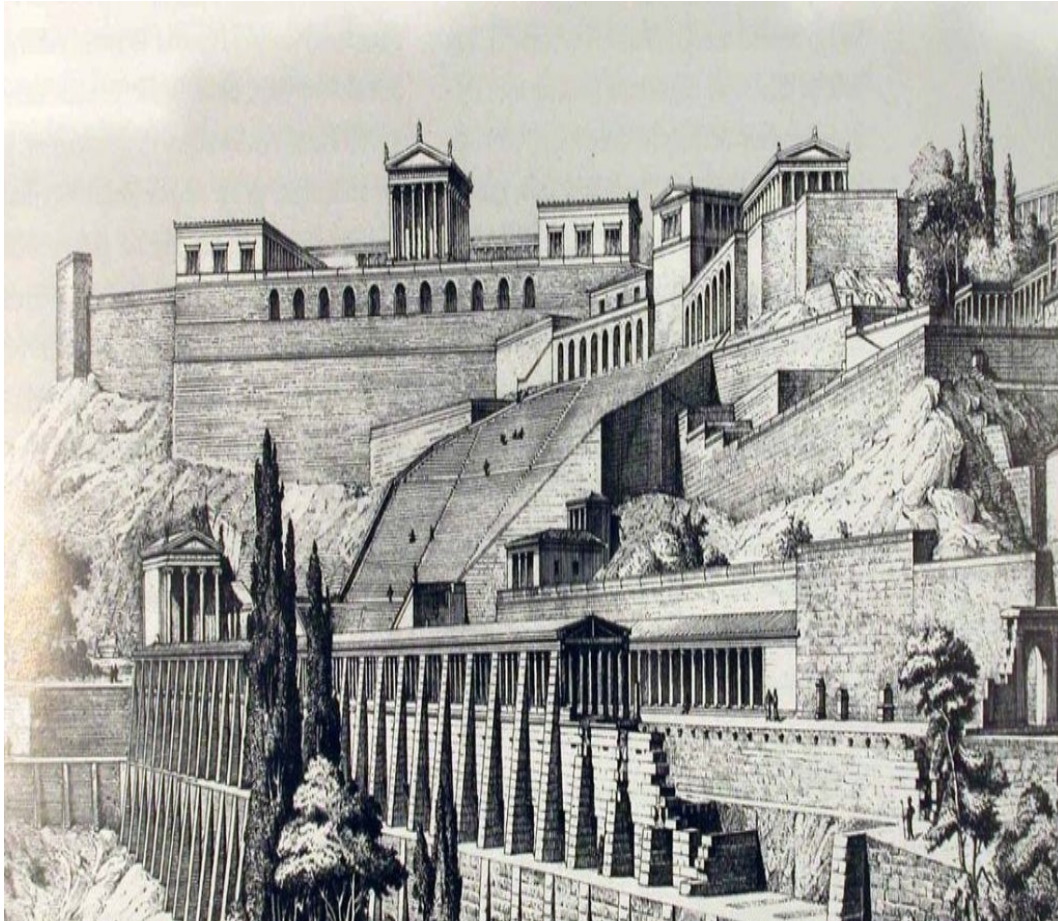
Book lending: As it has been stated earlier that the house contained a considerable number of rooms and halls. One of the halls was devoted for readers that had some servant who provide help, comfort and other sort of services for those who frequently came to the library. There had been also an external but conditional lending of, in which books were lent for people who value them therefore they have to make a pledge and pay a refundable cost for the lent book in case of damage or loss in order to preserve all book collections within the library.

2. *Copying and binding:* this section was related to the translation movement, once the translator finishes the assigned job, the product will be transferred to a writer who were having a distinguished hand writing style. The caliph al-Ma'mūn himself was the one who nominated the writers and the writing style. When the written product is ready it would be devolved to other people for binding and decorating. The final copy would be distributed also in other libraries outside of Baghdad to the Tunisian House of Wisdom, and Cairo's Dar al-Hikmah. .
3. *Maps and manuscripts:* the library has preserved a big number of geographical maps manuscripts, and astronomical photographs. Bayt al-Hikmah had kept many resources for geographers and astronomers who could benefit from these collections, for instance al-Mas'ūdī had viewed a photograph named *al-Sūra al-Ma'mūniyyah* that has been produced by a number of scholars in the time of al-Ma'mūn, it demonstrates the whole world with its stars, planets, land, oceans and urban places of cities and nations. Furthermore there existed another manuscript that pictures the earth with its seas, mountains, valleys...etc.
4. *Translation and authoring:* the Abbasid caliphs have had a great

concern in translating and transmitting the legacy of the ancient nations to the Arabic language in order to avail from it and to contribute in the new procedure of the ancient knowledge innovation. This had been one of the main leading tasks and activities for the house of wisdom. Translation movement have focused on some main languages that include: Greek, Indian, Syriac, and Persian languages. This section was subdivided into different assembly based on the subjects of translation and each was assigned to one of the eminent scholars at that time, for instance, the assembly of mathematics and engineering was assigned to Abū Ja'far Ibn Mūsā Ibn Shākir (183-258 AH) and his brothers, assembly of stars' movement and philosophy were assigned to Ya'qūb al-Kindī (184-259 AH) and to Ibn Farkhān al-Tabarī and the body of Medicine that was designated to Ibn Ishāq al-Harānī

The library was not only a place of translating the ancient heritage but it was also the institution when scholars and scientists authored their own books on literature, history, philosophy, linguistics, medicines...etc. Hārūn al-Rashīd (149-193 AH) had appointed Ibn Qarib al-Asma'I (121-216 AH) to author a book on history, the latter had finished his first assigned task in the house of wisdom itself. Abu Zakariyya al-Farra' (144-206 AH) had also authored one of the earliest publications on Arabic Grammar. In addition to that, Bayt al-Hikmah represented the educational institution for the Abbasids who spent their fortune to appoint scholars and lecturers to teach philosophy, astronomy, history, geography, mathematics, medical sciences, and music...etc. the educational environment in the library had given the opportunity to student to pursue their research on higher education thus, the House of wisdom had become the first Islamic university in history of Islam. (Amin, 1963).

5.



Pergamon Library

Chapter 4

Siege of Baghdad 1258 & the Fall of the House of Wisdom



BAGHDAD as a CIRCULAR CITY

The Abbasid dynasty had a strong Persian influence. The Abbasid dynasty had a strong Persian bent, and adopted many practices from the Sassanian Empire—among those, that of translating foreign works, except that now texts were translated into Arabic. For this purpose, al-Mansur founded a palace library modeled after the Sassanian Imperial Library, and provided economic and political support to the intellectuals working there. He also invited delegations of scholars from India and other places to share their knowledge of mathematics and astronomy with the new Abbasid court.

The **Round City of Baghdad** is the original core of Baghdad, built by the Abbasid Caliph al-Mansur in 762–766 CE as the official residence of the Abbasid court. Its official name in Abbasid times was **City of Peace** known in Arabic as *Madīnat as-Salām*). The famous library known as the House of Wisdom was located within its grounds.

he round city of Baghdad in the 10th century, the peak of the Abbasid Caliphate.
Illustration: Jean Soutif/Science Photo Library



Baghdad 1,200 years ago was the thriving capital of the Muslim civilization. For about 500 years the city boasted the cream of intellectuals and culture. For more than two centuries, it was home to the House of Wisdom, an academy of knowledge that attracted brains from far and wide. From mathematics and astronomy to zoology, the academy was a major centre of research, thought and debate in Muslim Civilization (Sketch: 1001 Inventions).

ROUND DESIGN of BAGHDAD

Baghdad was founded on 30 July 762 CE. It was designed by caliph Al-Mansur. According to 11th-century scholar Al-Khatib al-Baghdadi in his *History of Baghdad*, each course consisted of 162,000 bricks for the first third of the wall's height wall was 80 ft high, crowned with battlements and flanked by bastions. A deep moat ringed the outer wall perimeter.

Thousands of architects, engineers, legal experts, surveyors, carpenters, blacksmiths, diggers, and ordinary laborers from across

the Abbasid empire were brought in to survey, measure, and excavate the foundations. Ya'qubi, in his *Book of Countries*, it was thought there were 100,000 workers involved. "They say that no other round city is known in all the regions of the world," according to Al-Khatib al-Baghdadi. Four equidistant gates pierced the outer walls where straight roads led to the center of the city. The Kufa Gate to the south-west and the Basra Gate to the south-east both opened onto the Sarat canal - a key part of the network of waterways that drained the waters of the Euphrates into the Tigris. The Sham (Syrian) Gate to the north-west led to the main road on to Anbar, and across the desert wastes to Syria. To the north-east the Khorasan Gate lay close to the Tigris, leading to the bridge of boats across it.

The four straight roads that ran towards the center of the city from the outer gates were lined with vaulted arcades containing merchants' shops and bazaars. Smaller streets ran off these four main arteries, giving access to a series of squares and houses; the limited space between the main wall and the inner wall was due to Mansur's desire to maintain the heart of the city as a royal preserve.

By 766 Mansur's Round City was complete. The ninth-century essayist, polymath, and polemicist al-Jahiz said. "I have seen the great cities, including those noted for their durable construction. I have seen such cities in the districts of Syria, in Byzantine territory, and in other provinces, but I have never seen a city of greater height, more perfect circularity, more endowed with superior merits or possessing more spacious gates or more perfect defenses than Al Zawra (Baghdad), that is to say, the city of Abu Jafar al-Mansur.

The city had an impressive array of basic services and employed a large staff of civil servants. These included night watchmen, lamplighters, health inspectors, market inspectors (who examined the weights and measures as well as the quality of goods), and debt collectors. It also had a police force with a police chief who lived in the caliph's palace.

Destruction and abandonment

The Round City was partially ruined during the siege of 812-813, when caliph Al-Amin was killed by his brother, who then became the new caliph. It never recovered; its walls were destroyed by 912, nothing of them remain, there is no agreement as to where it was located.

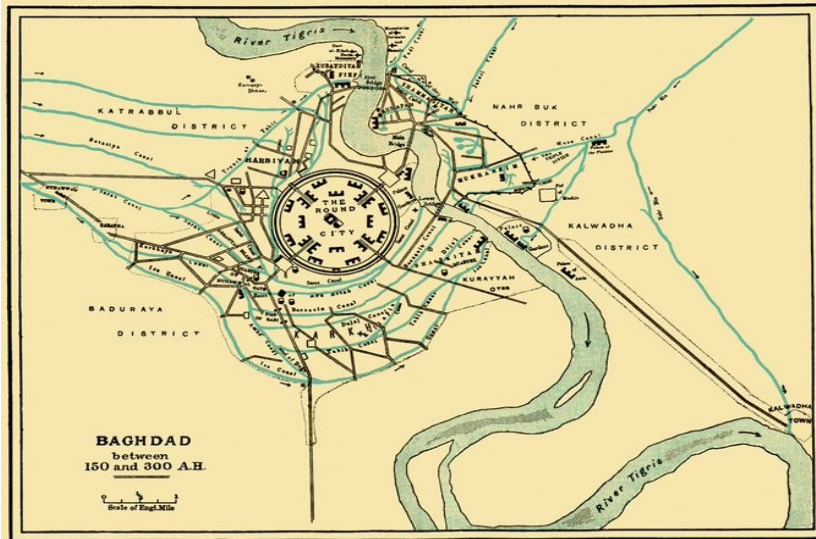
Islamic Golden Age Founder, caliph al-Mansur of the Abbasid caliphate, chose the city's location because of its critical link in trade routes, mild

climate, topography (critical for fortification), and proximity to water. All of these factors made the city a breeding ground of culture and knowledge. Baghdad is set right on the Khurasan Road, which was an established meeting place for caravan routes from all cardinal directions.^[8] During the construction of the city, gates were placed at the entrances of the major roads into the city, in order to funnel traffic into the city. The Kufah Gate was on a major road that pilgrims took to Mecca, and the Anbar gate linked the bridges over the canals and Euphrates River to the city. These were a substantial help in bringing people into the city, and around these entrances, markets sprang up for travelers to trade at. The link in trade routes provided a flood of goods into the city, which allowed numerous markets to spring up drawing people from all of the Middle East to Baghdad to trade. The markets that developed in Baghdad were some of the most sophisticated as well because of the government's supervision of their products as well as trade amongst each other. Because of the sophisticated trading market, an advanced banking system developed as well, allowing further settlement from outsiders. Baghdad's location between the Tigris and Euphrates Rivers as well, created a trade link to further destinations such as China, India and Armenia, drawing even more people, literature, and knowledge to the city from exotic and distant lands. The mild climate and topography made it easy to settle as well for travelers coming to the city to trade. As Baghdad became a trading hub in the Islamic Empire, cultures collided, sharing knowledge, books, language, and faiths, ultimately creating a "cosmopolitan city" that developed into a learning center for the world.

As more and more people began to settle in the city, numerous schools began to spring up including the Hanafi and Hanbali schools of law. Law is a critical study for the Muslim people, because of the understanding of justice on Earth as applied to God. The Hanafi is currently the largest school of legal thought in the Muslim world, and it was a major draw for scholars to the city of Baghdad. Another important school in Baghdad that began was the Bayt al-Hikma (House of Wisdom), which focused on translating texts from various languages into Arabic. This practice began out of a need to supply educated texts from around the world to a growing educated public market. In particular, the Arabic translation of Grecian texts became a substantial market that was quite progressive because its primary impetus from the caliphate was to establish a new ideology with a political and scientific base. This translation helped to foster the transition between a primarily oral society, to one centered on a written language. Baghdad's location also made it ideal for paper production, which lowered the cost of creating books, making them more prevalent and accessible to more people. As more and more texts began to be produced as well, a new market for book vendors opened up, and numerous libraries and bookstores sprang up in the city. As the public and private sectors of the community became more educated, cultural narrative and secular writing began. In the

city, demand for secular literature, designed for entertainment, developed, which shaped the culture of the city's population, as well as the Abbasid Empire as a whole, with Baghdad being their crowning achievement and reason for the Golden Age of Islam. At this time, Baghdad was revered as the "center of the world" because of its scholarship. Michael Cooperson says that "Baghdadi scholars were so numerous and so eminent that reference to them could continue to support the 'center of the world' thesis." The influx of trade and commerce brought these scholars to the city and made it the cosmopolitan breeding ground of knowledge that it became. Al-Mansur's foundation and construction of the city as well were done by only the best and brightest scholars, further fostering the notion of a highly intellectual city population to support the Golden Age. At the height of the golden age in Baghdad, it was estimated that there were over one and half million people living in the city.

Al-Mansur's foundation of the city was ultimately based on its potential position as a military arsenal, and its ability to house and support many troops. Large numbers of troops were what originally gave the city such a dense population, but as the army continued to need supplies more and more people flooded to the city for jobs, thus being another reason Baghdad became a center of commerce. Baghdad also being named the new capital of the Abbasid caliphate drew numerous people in for the prestige and name alone. Al-Mansur designated a governor of Baghdad and sent with him a number of elites who gave the city a higher status and poise, drawing more and more scholars to study in such a well-educated and cosmopolitan city. Baghdad grew and developed in a variety of facets, and because of this it arguably became the largest city in the world during that time.



With its circular design the Round City was meant to mirror the cosmological disc of the heavens, four main gates (Kufa, Basra, Khurasan and Damascus) pointed towards the cardinal directions, symbolising the varied directions of Abbasid control.

Historical renewal of Baghdad- Redevelopment, rehabilitation and conservation

1- Emerge stage - Growth stage

Historical evidence suggests that the antique and archaeological information in the region of Karkh and Rasafa tracing back to the civilization Tel Harmel (Shadrubm) in the Kingdom of Ashnuna and will dated back to the late third millennium BC. As it shown below the most important dates in the history of Baghdad, as follows:

Gregorian Date (AC)	Incidents witnessed important historical center of Baghdad
762	Al-Mansur founded the city on the western side
836	Transmission of the Abbasid Caliphate of Baghdad to Samarra, which had in consequence the downfall of Baghdad.
892	Baghdad was again the capital of Caliph Al Moatamed and the urban life and residences concentrate on the eastern side and changed the significance of the west side of the Tigris River.
1055	At the beginning of the Seljuq aera and in Rusafa three bridges of boats were constructed and linked to Karkh. Furthermore some of the surrounding walls were constructed for protection Rusafa.
1089	Initiation of the establishment of the Great Wall of Baghdad and the construction was finished after 28 years.
1226	Construction of Al Abasi palace
1232	Construction completed of the school Mustansiriya.
1258	Occupation of Baghdad by Hulako and stopping the Abbasid rule
1729	Construction of fence along the western Baghdad
1766	As indication of the beginnings of the British influence in Baghdad the first British house was constructed of a British High Commissioner.
1853	best survey of the Ottoman period by Felix Jones, creation of a map of most urban and architectural buildings and districts and both river sides, according Mr. Jones map Rusafa consisted of 63 locations, 306 avenues, 55 mosques, 47 markets/suqs, 39 Khans. Karkh included 10 stores.
1860	In the late Ottoman period some major changes taken place in the city especially the rule of Namik Pasha and Midhat Pasha implemented a lot of urban changes into the historic city center in the spirit of "Western Inspired Modernization".
1869	Midhat Pasha initiated the demolition of the wall and the latest changes in local and various economy and he opened the city for the expansion outside the surrounding wall for the first time after 800 years. The demolition of the wall is an important step in the city development.
1917	Opening of the Al-Rashid Street which is a key indicator of the Western-oriented modern road network.
1918	Construction ot a bridge which connctected Rusafa and Karkh as contact point between both of them.
1921	Establishment of the Kingdom in Iraq under the British Mandate, which is a turning point in the history of Baghdad.
1928	The establishment of the location of Sinak that rely on the rectangular planned to suit the changes in traffic means of transport, which includes

	mechanical and architectural style and urban access technologies and materials for new building construction, which represents a significant shift across the city.
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2- Urban planning stage, Urban design project to develop center

This stage remark emerging of urban planning development for Baghdad, and most important milestone in this field:

1936	Two German engineers prepared a first outline as the basis for the city of Baghdad. The strongly confirmed and planned construction included the planning of new wide roads through the urban fabric with high density in Rusafa and creation of commercial streets which would be similar to in the streets in Europe. Two of these roads were constructed during the textile district (Alkifah and Sheikh Omar Streets). In Rusafa the Al-Rashid Street contains three lanes and going in a balanced manner and along the Tigris River. They were changed in the direction of the movement and traffic in Rusafa and assisted through street in 90 degrees.
1938	Opening of the bridge of Al Shohdai who was sited instead of Al Mamun old floating bridge.
1940	Opening of Al Ahrar bridge which was called Mode Bridge.
1954	The Kulafai Street was expanded after increasing private cars after the oil boom as a result of the economic boom. Rusafa was divided into five parts written as isolated length of 3 km and a width between 400 - 600 m.
1956	1st general master plan was created by a Britain planning office which intensifies the one family concept and separating working, living and free time on the south gate with Hotels, cinemas and cafes and on the north gate a medical centre created
1958	2 nd general master plan was created by a Greek planning office Doxiadis and the concept was for expansion up to 3million inhabitants
1962	first steps to save the old central city, the pressure increased during the revolution and the development of the city suburbs of Baghdad, The development accompanied by preparing plans to redevelop the Rusafa and Karkh sector as the Central Business (CBD).
1967	A comprehensive development plan for Baghdad 2000 was created by the consulting company Polish (PolSERVICE)
1973	The comprehensive development plan of Paul Surfs was revised to revitalize Karkh and Rusafa as central areas of the capital Baghdad.
1973	The implementation of the July 17 bridge project to link the Karkh Rusafa and the establishment of a route to a Al Talaei square.
1980	The preparation of a detailed study of transport in Baghdad by Baghdad municipality.
1981	The Haifa Street project started and was accomplished in 1985
1981	Baghdad Metro project planning has not been implemented.
1982	Provision of the comprehensive development proposals planned for Baghdad, 2000
1982	Completion of a Study-Karkh Development project and proposed by the Office of Alusi Technical Consultants
1984	Studying the development of the Rusafa area by the Consultative Japanese JCP
1985	Comprehensive development strategies by Japanese JCCF consultants and Baghdad Secretariat.
1986	Comprehensive inventory of heritage buildings for Rusafa.
1987	Planning of integrated development of the city of Baghdad, 2001 and

		outlines a proposal for developing the river front by the Consultative Japanese JCCF but no implementation so far.
	1988	Baghdad Municipality issued a set of controls for construction and planning division of the land in the city of Baghdad.
	1994	Study the preservation of buildings of heritage and the role of the Rusafa by the University of Baghdad.
	1998	Urban development project for the city of Baghdad (2015) Phase 1 by the Secretariat and the University of Baghdad
	2000	Urban development scheme for the city of Baghdad (2015) Phase 2 by the Secretariat and the University of Baghdad
	2010	Comprehensive development planning Baghdad (2030) by Qateeb & Alame and PCI Japanese consultants and Baghdad Secretariat.

ARCHITECTURE

The city of Baghdad was founded in the 8th century as the capital of the Abbasid Caliphate, by its caliph al-Mansur. The Caliphate had just defeated the Umayyads, and al-Mansur wanted his own capital to rule from. He chose a site about 30 km to the north of the Sassanid capital of Ctesiphon, along the banks of the Tigris, and began to draw up plans for its design and construction. Mansur wanted Baghdad to be the perfect city, to be the capital of the Islamic empire under the Abbasids. To that end, he brought in thousands of architects, engineers, surveyors, carpenters, blacksmiths and over a hundred thousand laborers from across the Abbasid empire. He consulted astrologers, and according to their advice, laid the first ceremonial brick on 30 July 762.

Site for Baghdad

The choice of site for the new capital was an indication of the cAbbasids' break with the Umayyad tradition of looking towards Syria and the culture of the Mediterranean. AlMansur (754–75) inspected several sites, all in Iraq, before settling on the little village ʿ of Baghdad on the western bank of the Tigris 30 km upstream from the former Sasanian capital of Ctesiphon. The foundations of the new residence, which received the official appellation of Madīnat al-Salam (City of Peace), were laid in the year 762. Baghdad at ʿ once became an international city. The 30,000-strong army of al-Mansur which lodged in ʿ the city contained detachments from every part of Iran and, in particular, from Khurasan. The builders of Baghdad, some of whom remained in the city after it was built, represented all the countries of the Near East. The local population, who spoke Aramaic and some Persian, was mixed with Arabs from Kufa, Basra and Wasit. Some districts which were called after different areas of Transoxania accommodated troops from those areas. A new Muslim culture gradually took shape in this ethnic cauldron, thereafter solidifying in different language traditions.¹

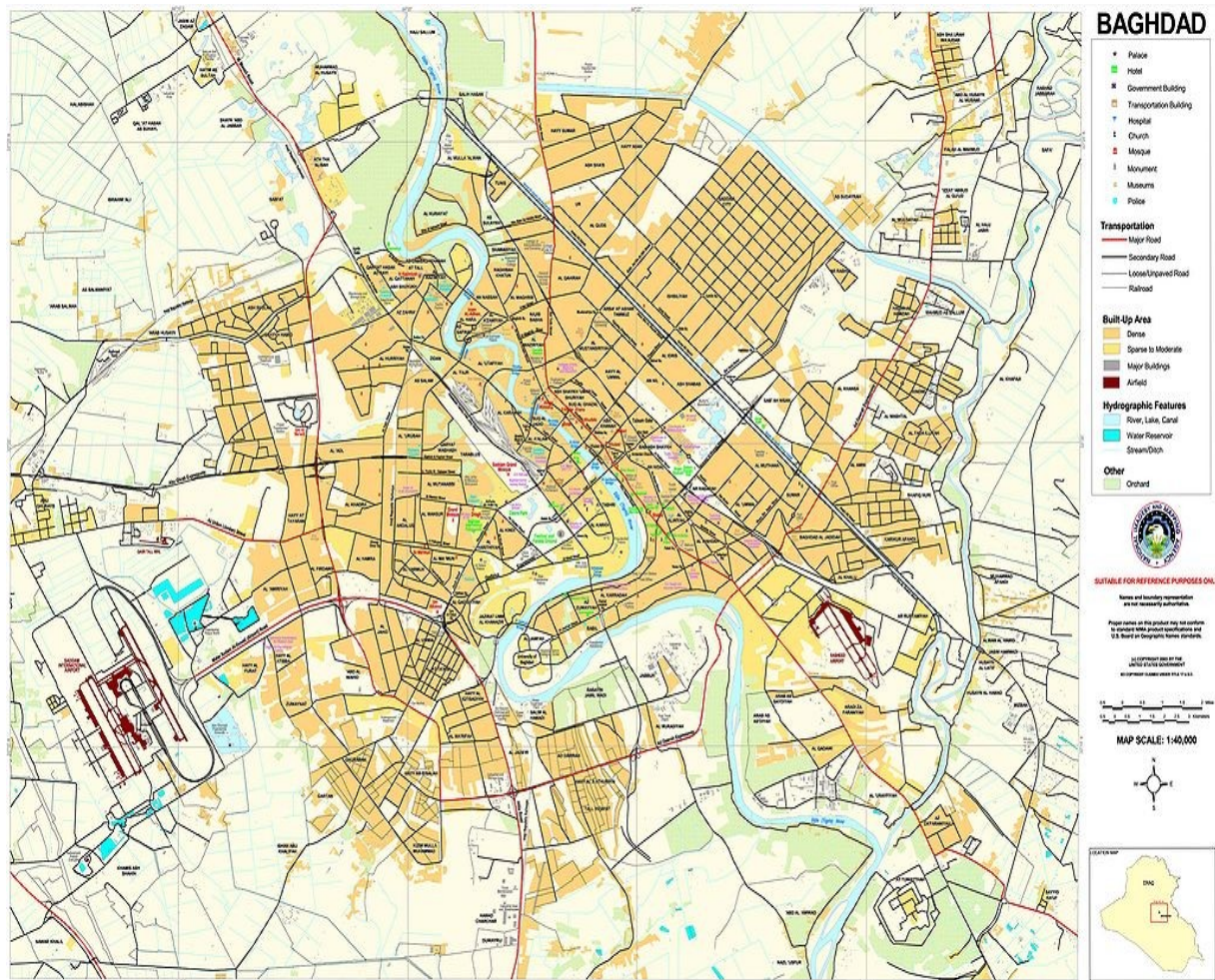
he original city was designed in the shape of a circle 2 km across. The circle was the caliph's tribute to the geometric teachings of Euclid, whom he had

studied and admired. In the center of the city stood the two finest buildings in the city: the Great Mosque and the caliph's residence, the Golden Gate Palace. Surrounding the palace and the mosque was an esplanade and a waterside building, in which only the caliph was allowed to ride on horseback. At the edge of this immense enclosure were palaces of the caliph's children, homes for the royal staff and servants, the caliph's kitchens, barracks for the horse guard and other state offices. This central area was protected by an inner wall. The living quarters and commercial buildings were concentrated in a ring between the exterior wall of the city and the second fortified round wall. The exterior perimeter wall was 30 meters high and 44 meters thick at the base. It was crowned with battlements and flanked by bastions. It was surrounded by a deep moat. The city was divided into four quarters by two perpendicularly intersecting streets that ran from end to end of the outer perimeter wall and terminating at four gates. Each of the four gates pointed towards a different city — Basra, Kufa, Khurasan and Damascus — and named after that. The gates opened onto an arcaded street running all around the exterior inhabited ring. Unfortunately, nothing of this great city remain today. The last traces of al-Mansur's Round City were demolished in the early 1870s when Midhat Pasha became the Ottoman governor of Baghdad. Midhat Pasha might have had little interest in preserving history, but the big reforms that he introduced for Baghdad and Iraq in general, transformed the face of the city. He built countless schools and educational institutes, of which there were none in Baghdad, as well as hospitals, granaries, public parks, a water supply system, roads and bridges. He introduced land reforms and tax laws and encouraged nomadic tribes to settle and cultivate. The three years that Midhat Pasha spent as governor were the most important years in Baghdad's modern history.

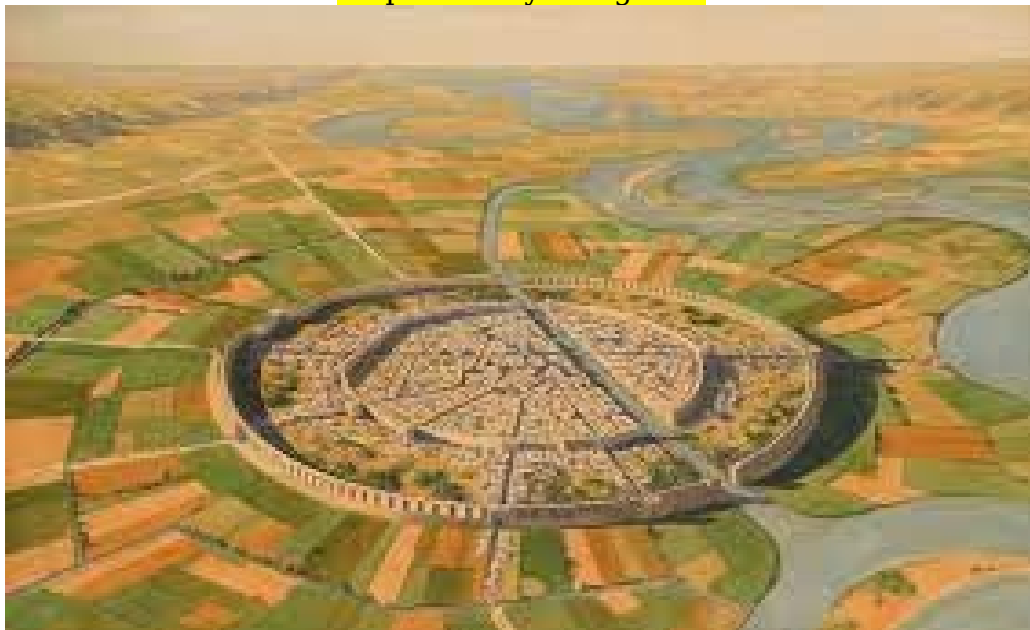
“CENTRAL ASIA UNDER THE Umayyads and the Early Abbasids by C. E. Bosworth and O. G. Bolshakov, https://en.unesco.org/silkroad/sites/default/files/knowledge-bank-article/vol_IVa%20silk%20road_central%20asia%20under%20the%20umayyads%20and%20the%20early%20abbasids.pdf



Satellite view of Baghdad 2014



Map of Today's Baghdad



The Islamic Golden Age—from the 8th to the mid-13th century—was one of the greatest periods of human flourishing in knowledge and progress, with Baghdad as its focal point. A truly global repository of human knowledge, this Arab-Muslim imperial capital also welcomed—indeed encouraged—scholars from across the known world. As its wealth and fame grew, more and more scholars and engineers were drawn to the city from all over civilization. But in January 1258, a vast Mongol army reached the city's perimeter and demanded that the caliph—al-Musta'sim, the nominal spiritual authority of the Islamic world—surrender.

The life of Muslims throughout history was correlated with the establishment of libraries that is when libraries flourish the life of scholars and scientists witness a remarkable progress (Ibn Al-Nafis, Ibn Al-Haytham, Ibn Sīnā...etc.) thus libraries are not just a tool of activity but rather they represent a depot of intelligence and mental inheritance for all humankind, a researcher who does not grasp the history of libraries and the legacies left by our ancestors would never fully be able to benefit from them. Unlike what some people may believe about the ancient libraries being unable to match the contemporary bookstores, libraries were the meeting place for men of literature, science cultures religions...etc. ¹

The House of Wisdom was also referred to as Al-Hikma Bookstore (Khizanat Al-Hikma), and The House of Wisdom Bookstore of Al-Ma'moun (Khizanat Dar Al-Kutub Al-Ma'mouniya). It should be pointed out that the Arabic term Khizanat Kutub, meaning literally a bookstore, is an old name meaning a present day library..." The Arab empire was hugely powerful by late 8th and early 9th century; its rulers were getting taxes from across the empire and had money to spend on translations and patronage of scholarship. About this time the House of Wisdom was set up in Baghdad by one of the Abbasid caliphs, al-Ma'mun. It began as a translation house, translating Greek texts into Arabic and rapidly started to attract the greatest minds in the Islamic world, while Arabic became the international language of science. There was also a strong influence from Persia; an Arab scholar once said, "We Arabs have all the words but you Persians have all the ideas."

In this context, a widely held misconception claims that the Islamic world did no more than act as steward of Greek science. However, "an incredible number of important and original advances were made by Arab scientists, who were the first to undertake real science - theory and experimentation - several hundred years before the scientific revolution in Europe."

The House of Wisdom (Bayt al-Hikmah) and Its Civilizational Impact on Islamic libraries: A Historical Perspective Adel Abdul-Aziz Algeriani, Mawloud Mohadi
https://www.researchgate.net/publication/319872261_The_House_of_Wisdom_Bayt_al-Hikmah_and_Its_Civilizational_Impact_on_Islamic_libraries_A_Historical_Perspective

In Michael Hamilton Morgan's book called "Lost History: The Enduring Legacy of Muslim Scientists", highlight the great accomplishments in Baghdad during the rule of the Abassid Caliph al-Ma'mūn from 813-833 AD, under whose leadership Baghdad rose to become the center of learning and the heart of the Arab golden age. Caliph al-Ma'mūn's House of Wisdom, where Christian and foreign translators rendered the Greek, Roman, Byzantine, Persian, and Hindu classics into Arabic, helped lay the foundation of modern mathematics, astronomy, chemistry, medicine and literature. As a result of al-Ma'mūn's patronage and vision, Baghdad gave birth to algebra and advanced trigonometry, the names of the stars, the mixtures of tinctures and remedies, and the heart of philosophy and literature. It was in Baghdad that Scheherazade told the tales of the One Thousand and One Nights [1001 Arabian Nights].

While Baghdad was flourishing, other nasty things were happening North of the Asian continent. A Devastating Moment in History for Muslims in the Middle East was the arrival of the Mongols on the map of the world...For many historians, the arrival of the Mongols into the heart of the Muslim faith and empire is the single most devastating moment in the history of the Muslim Middle East. It's easy to see why—and hard to argue otherwise—because the Sack of Baghdad would mark the end of the Islamic Golden Age.

History of Baghdad: The Greatest City in the World

If you can imagine the shock waves, were London razed to the ground tomorrow, you'd be getting close to the horror that was about to accompany the Sack of Baghdad in 1258.

Founded 500 years earlier, Baghdad's population had reached one million within a century, making it the world's largest, most prosperous, and celebrated city. If one thinks of London in 1897—the year when Queen Victoria celebrated her Golden Jubilee—the English city on the Thames was by then the largest and most important city on earth. In 1897, London was peerless in the world, with nowhere else coming close to matching its power and influence. It was the capital, and the fulcrum, of the British Empire.



Courtyard of Mustansiriya College of higher education in Baghdad, built in 1227. This is a symbol of prosperity in Baghdad during the medieval era. (Image: Photograph by Taisir Mahdi/Public domain)

Abbasid caliph Harun al-Rashid founded the House of Wisdom in Baghdad during his reign (786-809). It was a research and educational center where leading scholars from various fields came to share their knowledge. The House of Wisdom was the largest repository of books in the whole world already by the middle of the ninth century. It was the leading center for the study of mathematics, astronomy, medicine, alchemy, chemistry, zoology, geography and cartography. Unluckily the mongols destroyed the House of Wisdom when they attacked Baghdad in 1258.



The **history of Baghdad** begins when the city of Baghdad (Arabic: بغداد Baġdād) was found in the mid 8th century as the Abbasid capital, following the Abbasid victory over the Umayyad Caliphate. It replaced the Sassanid capital of Seleucia-Ctesiphon some 35 km to the south-east, which was mostly depopulated by the end of the 8th century. Baghdad was the center of the Arab caliphate during the "Golden Age of Islam" of the 9th and 10th centuries, growing to be the largest city worldwide by the beginning of the 10th century. It began to decline in the "Iranian Intermezzo" of the 9th to 11th centuries, and was destroyed in the Mongolian invasion in 1258.

The city was rebuilt and flourished under Ilkhanid rule but never rose to its former glory again. It was again sacked by Timur in 1401 and fell under Turkic rule. It was briefly taken by Safavid Persia in 1508, before falling to the Ottoman Empire in 1534. With the dissolution of the Ottoman Empire, Baghdad fell under the British Mandate in 1920 and became the capital of the independent Kingdom of Iraq in 1932 (converted to a Republic in 1958).

As the capital of the modern Republic of Iraq, Baghdad has a metropolitan area estimated at a population of 7,000,000 divided into numerous neighbourhoods in nine districts. It is the largest city in Iraq. It is the second-largest city in the Arab world (after Cairo) and the second-largest city in Western Asia (after Tehran). In recent history, Baghdad has been affected by the Iraqi civil war, most notably by recurring bombings.

Baghdad was founded 1,259 years ago on the 30 July 762. It was designed by caliph Al-Mansur. According to 11th-century scholar Al-Khatib al-Baghdadi – each course consisted of 162,000 bricks for the first third of the wall's height. The wall was 80ft high, crowned with battlements and flanked by bastions. A deep moat ringed the outer wall perimeter.

Thousands of architects and engineers, legal experts, surveyors and carpenters, blacksmiths, diggers and ordinary labourers were recruited from across the Abbasid empire. First they surveyed, measured and excavated the foundations. Ya'qubi reckoned there were 100,000 workers involved. "They say that no other round city is known in all the regions of the world," Al-Khatib al-Baghdadi noted. Four equidistant gates pierced the outer walls where straight roads led to the centre of the city. The Kufa Gate to the south-west and the Basra Gate to the south-east both opened on to the Sarat canal – a key part of the network of waterways that drained the waters of the Euphrates into the Tigris. The Sham (Syrian) Gate to the north-west led to the main road on to Anbar, and across the desert wastes to Syria. To the north-east the Khorasan Gate lay close to the Tigris, leading to the bridge of boats across it.

The four straight roads that ran towards the centre of the city from the outer gates were lined with vaulted arcades containing merchants' shops and bazaars. Smaller streets ran off these four main arteries, giving access to a series of squares and houses; the limited space between the main wall and the inner wall answered to Mansur's desire to maintain the heart of the city as a royal preserve.

By 766 Mansur's Round City was complete. The ninth-century essayist, polymath and polemicist al-Jahiz said. "I have seen the great cities, including those noted for their durable construction. I have seen such cities in the districts of Syria, in Byzantine territory, and in other provinces, but I have never seen a city of greater height, more perfect circularity, more endowed with superior merits or possessing more spacious gates or more perfect defenses than Al Zawra (Baghdad), that is to say the city of Abu Jafar al-Mansur.

The city had an impressive array of basic services and employed a large staff of civil servants. These included night watchmen, lamplighters, health inspectors, market inspectors (who examined the weights and measures as well as the quality of goods), and debt collectors. It also had a police force with a police chief who lived in the caliph's palace

The House of Wisdom has played a distinguished role in the history of the Middle Ages for it was a bridge that transmitted the ancient civilizations including the Islamic one to the west, as it was the departure of modern sciences. Historians have a major consent that thanks to the house of wisdom and other similar schools and libraries, the continuity of human civilization was preserved after the fall of Greek and Roman civilizations. The house of wisdom was the leading library or in other words a leading

Islamic university that the Abbasid age required. Here are some papers that explored the impact of the house of wisdom on the Islamic libraries that came to existence as a simulating process of the Baghdad's library, moreover it studied the organizational structure of Bayt al-Hikmah along with library divisions, sections and services that it provided for scholars and readers.



13-th century manuscript, drawn by Al-Wasiti of the celebrated book "The Assemblies". Written by Hariri, shows a library in Baghdad

The research has dealt with funding sources and the budget that the state caliphs dedicated to the library. The study found out that, the house of wisdom has had a very organized administration and affair management system. In addition, new competing libraries have been influenced by the system of the house of wisdom in Baghdad which resulted in the emergence of newfound libraries in Egypt, Maghreb and Andalusia. The Abbasid library had preserved the knowledge and heritage of the ancient civilizations and it passed them to the west with a remarkable contributions, the latter has utilized some of the Abbasid period unprecedented discoveries to flourish and modernize.

The Abbasid Dynasty had much to offer for the human civilization of intellectual and scientific progress. Caliphs were giving the translation movement, transmissions, authoring and intellectual achievements a very high level of respect and support that represented key factors to getting hold of the Hellenistic, Indian, and Persian knowledge and wisdom.

Earlier Destruction and abandonment

The Round City was partially ruined during the siege of 812-813, when caliph Al-Amin was killed by his brother, who then became the new caliph. It never recovered; its walls were destroyed by 912, nothing of them remain, and there is no agreement as to where it was located.

Baghdad as a Center of Learning in 8th and 9th Century: Founder, caliph al-Mansur of the Abbasid caliphate, chose the city's location because of its critical link in trade routes, mild climate, topography (critical for fortification), and proximity to water. All of these factors made the city a breeding ground of culture and knowledge. Baghdad is set right on the Khurasan Road, which was an established meeting place for caravan routes from all cardinal directions. During the construction of the city, gates were placed at the entrances of the major roads into the city, in order to funnel traffic into the city. The Kufah Gate was on a major road that pilgrims took to Mecca, and the Anbar gate linked the bridges over the canals and Euphrates River to the city. These were a substantial help at bringing people into the city, and around these entrances markets sprang up for travellers to trade at. The link in trade routes provided a flood of goods into the city, which allowed numerous markets to spring up drawing people from all of the Middle East to Baghdad to trade. The markets that developed in Baghdad were some of the most sophisticated as well because of the government's supervision of their products as well as trade amongst each other. Because of the sophisticated trading market, an advanced banking system developed as well, allowing further settlement from outsiders. Baghdad's location between the Tigris and Euphrates Rivers as well, created a trade link to further destinations such as China, India and Armenia, drawing even more people, literature, and knowledge to the city from exotic and distant lands. The mild climate and topography made it easy to settle as well for travellers coming to the city to trade. As Baghdad became a trading hub in the Islamic Empire, cultures collided, sharing knowledge, books, language, and faiths, ultimately creating a "cosmopolitan city" that developed into a learning center for the world.

As more and more people began to settle in the city, numerous schools began to spring up including the Hanafi and Hanbali schools of law. Law being a critical study for the Muslim people, because of the understanding of justice on Earth as applied to God. The Hanafi is currently the largest school of legal thought in the Muslim world, and it was a major draw for scholars to the city of Baghdad. Another important school in Baghdad that began was the Bayt al-Hikma (House of Wisdom), which focused on translating texts from various languages into Arabic. This practice began out of a need to supply educated texts from around the world to a growing educated public market. In particular the Arabic translation of Grecian texts became a substantial market that was quite progressive because its primary impetus from the caliphate was to establish a new ideology with a political

and scientific base. This translation helped to foster the transition between a primarily oral society, to one centered on a written language. Baghdad's location also made it ideal for paper production, which lowered the cost of creating books, making them more prevalent and accessible to more people. As more and more texts began to be produced as well, a new market for book vendors opened up, and numerous libraries and bookstores sprang up in the city. As the public and private sectors of the community became more educated, cultural narrative and secular writing began. In the city, a demand for secular literature, designed for entertainment, developed, which shaped the culture of the city's population, as well as the Abbasid Empire as a whole, with Baghdad being their crowning achievement and reason for the Golden Age of Islam. At this time, Baghdad was revered as the "center of the world" because of its scholarship. Michael Cooperson says that "Baghdadi scholars were so numerous and so eminent that reference to them could continue to support the 'center of the world' thesis...". The influx of trade and commerce brought these scholars to the city, and made it the cosmopolitan breeding ground of knowledge that it became. Al-Mansur's foundation and construction of the city as well, was done by only the best and brightest scholars, further fostering the notion of a highly intellectual city population to support the Golden Age. At the height of the golden age in Baghdad, it was estimated that there were over one and half million people living in the city.

Military Arsenal: Al-Mansur's foundation of the city was ultimately based on its potential position as a military arsenal, and its ability to house and support many troops. Large numbers of troops were what originally gave the city such a dense population, but as the army continued to need supplies more and more people flooded to the city for jobs, thus being another reason Baghdad became a center of commerce. Baghdad also being named the new capital of the Abbasid caliphate drew numerous people in for the prestige and name alone. Al-Mansur designated a governor of Baghdad and sent with him a number of elites who gave the city a higher status and poise, drawing more and more scholars to study in such a well-educated and cosmopolitan city. Baghdad grew and developed in a variety of facets, and because of this it arguably became the largest city in the world during that time.



The Flag of Baghdad Governorate with Madinat-al-Salam in the centre, via Wikipedia

Muslim geographer Ahmad al-Ya'qubi wrote in the ninth century:

'I mention Baghdad first of all because it is the heart of Iraq, and, with no equal on earth either in the Orient or the Occident, it is the most extensive city in the area, in importance, in prosperity, in abundance of water, and in healthful climate. It is inhabited by the most diverse individuals, both city people and country folk; people emigrate to it from all countries, both near and far; and everywhere there are men who have preferred it to their own country.'

Baghdad of the eighth and ninth centuries, also known as Madinat-al-Salam, or the City of Peace, was one of the most advanced cities in the world. Built of the baked brick, the city's walls have long since crumbled, leaving no trace of Madinat-al-Salam today. It was once was a major architectural achievement of its time, both in terms of planning and scale. For historians, reconstructing the city on the basis of the preserved descriptions, Madinat-al-Salam represents a perfect case study for Muslim urbanism, while modern architects, writers, and artists draw inspiration from its unique cityscape.



Round City of Baghdad, modern reconstruction, courtesy of Jean-Baptist Oudart

Madinat-al-Salam was founded by the second Abbasid Caliph Abu Ja'far Abdallah ibn Muhammad al-Mansur in 762 CE, with the aim of moving the capital closer to Khurasan - the region which had supported the Abbasids in their struggle for power against the previous dynasty - the Umayyads. It was comprised of three perfectly round walls - the outer, the main, and the inner - pierced by four gates, with the Caliph's residence in the middle. According to the Persian historian Muhammad ibn Jarir al-Tabari, before the constructions began, Caliph Al-Mansur commanded to draw the outline of the city in ashes. After walking around the city's imaginary streets and courtyards, Al-Mansur ordered cotton seeds and oil spread along the outline, which was then set on fire for the Caliph to see the city as a whole.



Aerial view

Al-Mansur was only the second Caliph of the Abbasid dynasty. The city's outline was modelled on ancient Persian cities, such as Gur (modern Firuzabad), reflecting his ambitions to retain and consolidate power. It is no coincidence that the new city was also located near Ctesiphon – the former capital of the Sasanian empire. Even the building materials were to be obtained from the demolition of Ctesiphon's palace of Khursaw, but the cost of breaking down the palace walls and then transporting the stone and brick upstream proved to be too high.

Madinat-al-Salam was clearly an Islamic place. Its name was a reminder of a Qur'anic expression (6:127) *Dar-el-Salam*, 'the House of Peace', which refers to Paradise (the name Baghdad comes from the village situated on the site chosen for the new capital). The city's Kufa gate (South-West) pointed at Kufa, the starting point for pilgrimages, and more importantly, at Mecca. The other three gates were located at regular intervals from Kufa gate and were named by the Caliph himself according to the destinations for which they gave access. The gates were high enough to allow a horseman carrying a banner or a lance to come through, and had double iron doors, so heavy that several men were needed to open and close them. According to the legend narrated by Al-Tabari, the four iron doors in the main wall, and one in Al-Mansur's palace, were originally crafted for King Solomon by shaytans, or demons.

In the centre of the city, protected by the inner wall, stood, side by side, the palace of the Caliph, also known as the Golden Gate, and the Great Mosque. The palace was crowned by a green dome with a weathervane in the shape of a horseman visible from all quarters of Baghdad. It was believed that the horseman was endowed with magical powers and pointed his lance in the

direction from where the enemies of the Caliph were going to appear. Later the figure and the green dome were destroyed by a thunderbolt. On the North-West side were the barracks for the Caliph's horse-guards and a portico, presumably occupied by the palace governor. The space surrounding these buildings was kept free of houses, but further away stood the palaces of the Caliph's children, his servants' dwellings, and public offices. Al-Mansur ordered that no one except himself could enter the central area riding, so everyone else had to leave their horse or mule outside of the inner wall, to the great annoyance of the Caliph's frail and gout-ridden uncles. One account claims that Al-Mansur also built a secret passage leading to beyond the city walls to provide escape in case of a siege.

The gatehouses in the main wall – the sturdiest of the three – were also topped with green cupola supported by the columns of teak wood. At the top story of each gatehouse, there was a chamber overlooking the city. The one above the Khurasan gate was a favourite resting place of Caliph Al-Mansur. On one occasion, while the Caliph was there an arrow, bearing a warning, was shot up and fell by his feet. Al-Mansur had nothing to fear though – it was believed that no Caliph would die in Baghdad.

In *The City of Peace: Reconstructions of the Round City of Baghdad*, Polina Ignatova of the Lancaster University writes, "While no tangible traces have yet been discovered of the eighth-century Madinat-al-Salam, and as it is currently impossible to conduct excavations in Baghdad, one can only hope that one day material evidence may be discovered. Yet its legacy lives on – through academic works and state emblems, utopian aspirations and ambitious architectural projects, as well as fictional places, the Round City of Baghdad survives in our collective imagination as a symbol of power, prosperity, and peace."¹

The lack of archeological excavations at the Round City's suspected site has left the task of reconstructing the Medinat al-Mansur as a mere theoretical and hypothetical exercise. The topic was again revisited in the second half of the 20th century in new contexts. One of the more recent scholars who has undertaken the subject again is Jacob Lassner, who presented a new critical interpretation based on the original texts "Tarikh Baghdad, (A History of Baghdad)," the "Geographical Dictionary" by al-Baghdadi and Ya'qubi, and the assessments made by Herzfeld and Creswell in the beginnings of the 20th century. Lassner's "The Topography of Baghdad in the Early Middle Ages" (1970) and "The Shaping of Abbasid Rule" (1980) presented a new concept of the city plan and a contrasting view of its architectural function and historical development in the earliest period, improving our current understanding of the city's design. In Lassner's studies, at least four previously held ideas about the al-Mansur's city were revised.

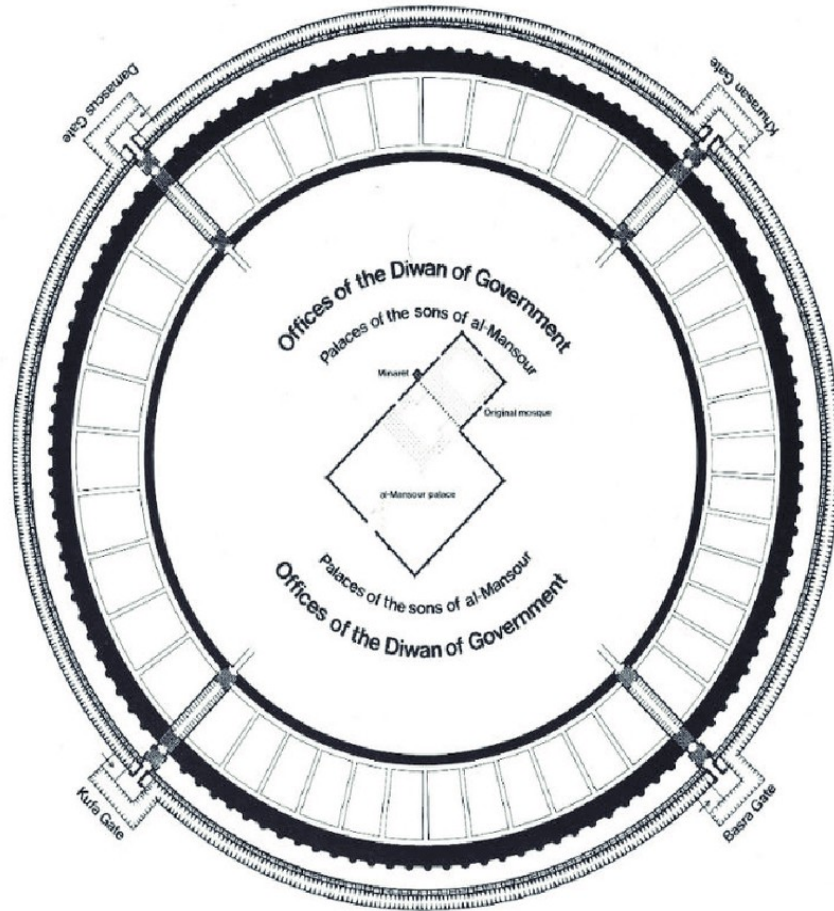
First, Lassner rejected the idea that al-Mansûr himself, "who had no known experience in architectural design (or with round structures) could have

personally created ex nihilo such a sophisticated and unusual design." Second, he argues against the view that Baghdad's building was a sign of the Abbasid assumption of Iranian rulership, being more a visible manifestation of the Abbasid inheritance of Persian Sassanian urban design royal tradition. Third, he rejects the claims that the palace-city had symbolic cosmological significance "simply because there are no explicit statements in the sources connecting the caliph with such symbolism." Finally, he affirms that "The Round City was, in fact, an administrative center, and not at all a city in the conventional sense of the term."

According to Ya'qubi, the plans for the city were drawn up, but it was not until 2 August 762 that construction began, under the supervision of four architects. Huge resources were amassed for the project: the Arab chroniclers report 100,000 workers and craftsmen, and sums of 18 million gold dinars or 100 million silver dirhams. The caliphal Palace of the Golden Gate and the main mosque, as well as some of the administration offices, were apparently completed by 763, allowing al-Mansur to move his residence into the city, and the rest of the Round City was completed by 766.

Mansur believed that Baghdad was the perfect city to be the capital of the Islamic empire under the Abbasids. Mansur loved the site so much he is quoted saying, "This is indeed the city that I am to found, where I am to live, and where my descendants will reign afterward". The goal was to replace Harran as the seat of the caliphal government; however, a city of Baghdad is mentioned in pre-Islamic texts, including the Talmud, and the Abbasid city was likely built on the site of this earlier settlement.

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1. <https://www.epoch-magazine.com/post/the-city-of-peace-reconstructions-of-the-round-city-of-baghdad.>"



The Round City of Baghdad, modern reconstruction, courtesy of Naji El Mir
BELOW

The Round City of Baghdad, modern reconstruction, courtesy of Jean-Baptist Oudart

Baghdad eclipsed Ctesiphon, the capital of the Sasanian Empire, which was located some 30 km (19 mi) to the southeast, which had been under Muslim

control since 637, and which became quickly deserted after the foundation of Baghdad. The site of Babylon, which had been deserted since the 2nd century, lies some 90 km (56 mi) to the south.

The old Baghdad was a small village, and despite its name, which is of Iranian origin (*bag* "god" + *dād* "gifted"), the original inhabitants were probably Aramaic-speaking Nabateans. The new city, however, was mainly Arabic-speaking, with considerable Persian elements in the population and urban environment, although there have not been any major Persian settlement in the village of Baghdad or its surrounding communities, all of which were absorbed into the new city of Baghdad. The Persian elements rather appeared after the foundation of the new city, and included Persian architectural influence, Persian military settlement in the early years, the continuing settlement of Persian scholars, and the late rulers of Persian origin (such as the Buyids).

The city was designed as a circle about 1 km (0.62 mi) in radius, leading it to be known as the "Round City". Given this figure, it may be estimated that the original area of the city, shortly after its construction, was around 3 km² (1.2 sq mi). The original design shows a ring of residential and commercial structures along the inside of the city walls, but the final construction added another ring, inside the first. In the center of the city lay the mosque, as well as headquarters for guards. The purpose or use of the remaining space in the center is unknown. The circular design of the city was a direct reflection of the traditional Persian Sasanian urban design. The ancient Sasanian city of Gur/Firouzabad is nearly identical in its general circular design, radiating avenues, and the government buildings and temples at the center of the city. This points to the fact that it was based on Persian precedents. The two designers who were hired by al-Mansur to plan the city's design were Naubakht, a former Zoroastrian, and Mashallah ibn Athari, a Persian Jewish astrologer/astronomer.

The city had four gates: Bab al-Kufa ("gate of Kufa"), Bab al-Sham ("gate of al-Sham or Damascus"), Bab al-Khorasan ("gate of Khorasan"), and Bab al-Basra ("gate of Basra").¹ This too is similar to the round cities of Darabgard and Gor, which had four gates. The Khuld Palace, the main palace of Baghdad built by al-Mansur, was located near the Bab al-Khorasan. The Khorasan Gate marked the beginning of the Great Khorasan Road.

None of the structures of the city has survived, and information are based on literary sources. The caliphal Palace of the Golden Gate and the main mosque were located at the centre of the circle. Influenced by the *apadana* design of ancient Iranian architecture, the mosque was built with a hypostyle prayer-hall with wooden columns supporting its flat roof. The caliphal palace featured an iwan and a dome-chamber immediately behind it, resembling Sasanian palace design (such as that of Gor

and Sarvestan). Building materials was mostly brick (sometimes strengthened by reeds), reflecting Mesopotamian architecture.

The residents were of two types: military people who were settled by the caliph, and a large number ordinary people who later settled in the city for economic opportunities. The second group were mostly Arabs and local Nabateans. The first group were mostly Persians from Khorasan and Transoxania, who were settled in the northwestern district known as *Harbiyya* (حربية). The *Harbiyya* included *Marwrūdiyya* division (مرورودية, for those from Marw al-Rudh i.e. modern-day Murghab, Afghanistan), a suburb of the *Furus* ("Persians", or possibly people from Fars), a suburb for the Khwarezmians, and a mosque dedicated to the people of Bukhara. As the future caliph Al-Mahdi moved from al-Rayy to Baghdad in 768, a second wave of Persian military people settled there. There were also noble Iranian families Barmakids (from Balkh) and the Sulids (from Gurgan). The descendants of these Iranians took the title *abnā'* (أبناء), short for *abnā' al-dawla* (أبناء الدولة, literally "sons of the state"), but also said to be echoing the title of the *abna'* of Yemen, also of Persian origin. The Persians of Baghdad were gradually acculturated by the early 9th century.

House of Wisdom: As the host of one of the major intellectual centers in the Abbasid Caliphs, the Grand Library of Baghdad, also known as The House of Wisdom, was likely to have attracted scholars of several disciplines. Among them, geographers, historians, or simple chroniclers provided extensive descriptions of the Madinat al-Mansur even years after the city's fading. All the information we have today related to the physical characteristics, structural functions, and social life in Abbasid Baghdad comes from these literary sources which were revisited in the 20th century. Some of the most important surviving literary sources from the late 10th and 11th centuries in Baghdad are "Description of Mesopotamia and Baghdad," written by Ibn Serapion; "Tarikh Baghdad (A History of Baghdad)", by the scholar and historian Al-Khatib al-Baghdadi, and the "Geographical Dictionary" by the geographer and historian Ya'qubi. These three books have constituted the foundation and required reading for modern research on the matter.

The definite revelation for the academic community of the existence of the Round City of Baghdad was recorded by Guy Le Strange, a British Orientalist prominent in the field of historical geography. His work "Baghdad during the Abbasid Caliphate: from contemporary Arabic and Persian sources," (1900) revisited, among other scholars, the work of Serapion and Ya'qubi to reconstruct a plan of the old city. Le Strange himself wrote in the preface of his book:

"(...) the real basis of the present reconstruction of the medieval plan is the description of the Canals of Baghdad written by Ibn Serapion in about the year a.d. 900. By combining the network of the water system, as described

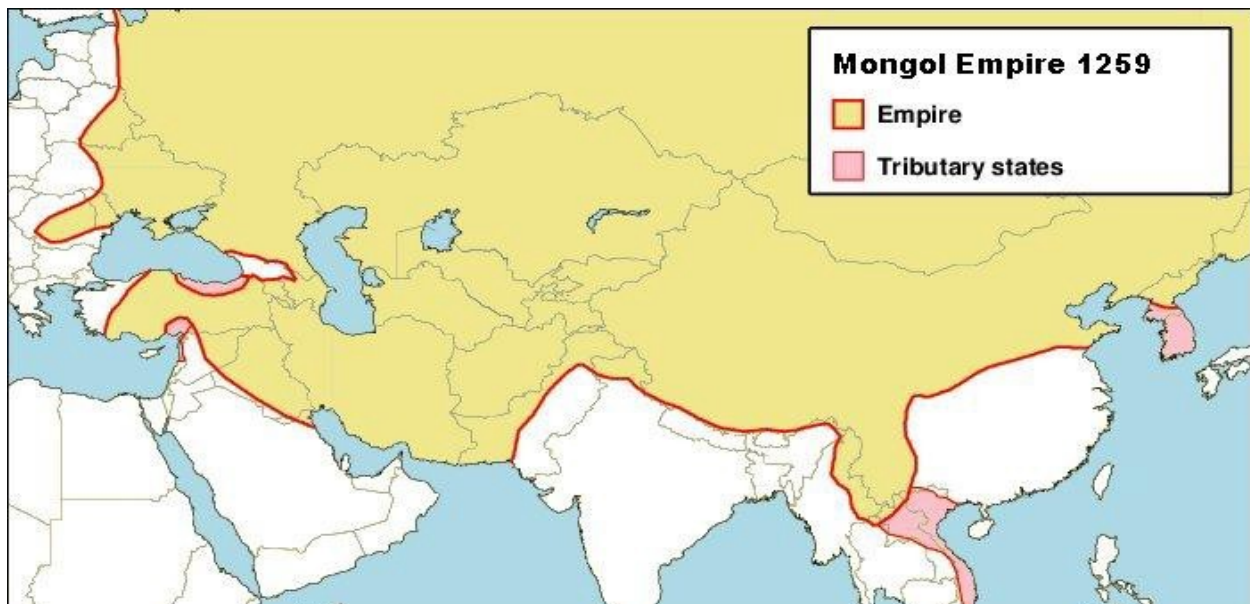
by this writer, with the radiating high-roads, as described by his contemporary Yakubi, it has been possible to plot out the various quarters of older Baghdad, filling in details from the accounts of other authorities, which, taken alone, would have proved too fragmentary to serve for any systematic reconstruction of the plan."

The book is illustrative of the kind of Orientalist studies such as this one, which enjoyed great popularity in Europe at the time, fostered interest in conducting surveys in situ. A few years after Le Strange's first publication of the Round City's plan, a wave of German and British excavations was commissioned by emerging museums and universities. Two scholars re-visited the topic while working in Iraq, conducting excavations in neighboring cities like Samarra. The first one to improve Le Strange's initial plan was Ernst Herzfeld, a German archeologist who produced between 1905-1913 a large body of work including translations, drawings, field notes, photographs, and objects inventories from his excavations at Samarra and elsewhere in Iraq and Iran. Concerned with the critical problems found in the original descriptive texts, Herzfeld, an architect by profession, offered new interpretations and developed new plans of the Round City of Baghdad. His study was more related to the description, arrangement, and function of the city's main buildings, contrasting with the more urbanistic approach of Le Strange. His reconstructions were celebrated as the first "major architectural work on this subject," accepted by subsequent scholars. One of them was British art historian Sir K. A. C. Creswell, whose 1932 publication of the first volume of his monumental survey "Early Muslim Architecture" remains widely acknowledged as an essential reference for early Islamic architecture.

The lack of archeological excavations at the Round City's suspected site has left the task of reconstructing the Medinat al-Mansur as a mere theoretical and hypothetical exercise. The topic was again revisited in the second half of the 20th century in new contexts. One of the more recent scholars who has undertaken the subject again is Jacob Lassner, who presented a new critical interpretation based on the original texts "Tarikh Baghdad, (A History of Baghdad)," the "Geographical Dictionary" by al-Baghdadi and Ya'qubi, and the assessments made by Herzfeld and Creswell in the beginnings of the 20th century. Lassner's "The Topography of Baghdad in the Early Middle Ages" (1970) and "The Shaping of Abbasid Rule" (1980) presented a new concept of the city plan and a contrasting view of its architectural function and historical development in the earliest period, improving our current understanding of the city's design. In Lassner's studies, at least four previously held ideas about the al-Mansur's city were revised.

First, Lassner rejected the idea that al-Mansûr himself, "who had no known experience in architectural design (or with round structures) could have personally created ex nihilo such a sophisticated and unusual design."

Second, he argues against the view that Baghdad's building was a sign of the Abbasid assumption of Iranian rulership, being more a visible manifestation of the Abbasid inheritance of Persian Sassanian urban design royal tradition.^[14] Third, he rejects the claims that the palace-city had symbolic cosmological significance "simply because there are no explicit statements in the sources connecting the caliph with such symbolism." Finally, he affirms that "The Round City was, in fact, an administrative center, and not at all a city in the conventional sense of the term."



The siege of Baghdad

The **siege of Baghdad** was a siege that took place in Baghdad in 1258, lasting for 13 days from January 29, 1258 until February 10, 1258. The siege, led by Ilkhanate Mongol forces and allied troops, involved the investment, capture, and sack of Baghdad, which was the capital of the Abbasid Caliphate at that time. The Mongols were under the command of Hulagu Khan, brother of the khagan Möngke Khan, who had intended to further extend his rule into Mesopotamia but not to directly overthrow the Caliphate. Möngke, however, had instructed Hulagu to attack Baghdad if the Caliph Al-Musta'sim refused Mongol demands for his continued submission to the khagan and the payment of tribute in the form of military support for Mongol forces in Persia. Though they called themselves Khan the Mongols were not Muslims. Genghis Khan was a Tengrist, but was religiously tolerant and interested in learning philosophical and moral lessons from other religions. He consulted Buddhist monks (including the Zen monk Haiyun), Muslims, Christian missionaries, and the Taoist monk Qiu Chuji and subjugation of the Islamic world was one of the aims- second ofcourse to the Great Khan Gengeiz's aim of world domination to become THE GREAT KHAN.

The Sack of Baghdad fits, like a hinge, almost exactly in the middle of two defining dates in the history of Islam, from the founding of the faith in the year 622 to the end of the last caliphate in 1924. Even by the standards of the day, the destruction was shocking, and the results long-lasting, if not permanent. The Mongols' name during this period in history was a byword for destruction. Who were they and where did they come from? Is there any reason to think that they were any more destructive than other peoples at the time?



The Mongols were a nomadic people whose mobility gave them a great advantage over civilizations centered around cities. (Image: Sayf al-Vâhidî. Hérât. Afghanistan - Bibliothèque nationale de France. Département des Manuscrits. Division orientale. Supplément persan 1113, fol. 49/Public domain)

The Mongols, an ethnic group, originating in north and central Asia, were typically pastoral peoples, whose nomadic lifestyle inevitably brought them into conflict with more settled populations. Probably the best example of how settled peoples tried to restrict their otherwise free movement is the Great Wall of China. The wall was essentially built to hold back incursions of their Mongolian neighbors to the north.

This preference for nomadism over a settled existence is central to the view of the Mongols as especially destructive. As one writer put it, while Muslims built cities—Baghdad and Cairo, for example—Mongols destroyed them. Does this mean that the Mongols were inherently more ruthless or violent than Muslims or crusading Christians? Not necessarily. Rather, it shows that their priority, in terms of conquest, was for land, for grazing—for space even—rather than for cities and confinement.

As one writer put it, while Muslims built cities—Baghdad and Cairo, for example—Mongols destroyed them.

One thing that came out of the Mongols' lack of interest in seizing cities was their enhanced mobility. Often living on a diet of mare's milk—or blood, if the mares were not lactating—Mongol custom meant that they never washed their clothes. This, along with a heavy fat diet—both milk and meat

—no doubt accounted for the Mongols' reputation as a very smelly, as well as scary, foe.

Hulagu began his campaign in Persia against the strongholds of Nizari Ismailis, who lost their stronghold of Alamut. He then marched on Baghdad, demanding that Al-Musta'sim accede to the terms imposed by Möngke on the Abbasids. Although the Abbasids had failed to prepare for the invasion, the Caliph believed that Baghdad could not fall to invading forces and refused to surrender. Hulagu subsequently besieged the city, which surrendered after 12 days.

During the next week, the Mongols sacked Baghdad, committing numerous atrocities; there is debate among historians about the level of destruction of library books and the Abbasids' vast libraries. The Mongols executed Al-Musta'sim and massacred many residents of the city, which was left greatly depopulated. The siege is considered to mark the end of the Islamic Golden Age, during which the caliphs had extended their rule from the Iberian Peninsula to Sindh, and which was also marked by many cultural achievements in diverse fields.



Gengeiz Khan (Above and Left Pic) and Ögedei Khan his successor(Pis at RIGHT)

Introduction and background: Baghdad had for centuries been the capital of the Abbasid Caliphate, the third caliphate, whose rulers were descendants of Abbas, an uncle of Muhammad. In 751, the Abbasids overthrew the Umayyads and moved the Caliph's seat from Damascus to Baghdad. At the city's peak, it was populated by approximately one million people and was defended by an army of 60,000 soldiers. By the middle of

the 13th century the power of the Abbasids had declined and Turkic and Mamluk warlords often held power over the Caliphs.

Baghdad still retained much symbolic significance, and it remained a rich and cultured city. The Caliphs of the 12th and 13th centuries had begun to develop links with the expanding Mongol Empire in the east. Caliph an-Nasir li-dini'llah, who reigned from 1180-1225, may have attempted an alliance with Genghis Khan when Muhammad II of Khwarezm threatened to attack the Abbasids. It has been rumored that some Crusader captives were sent as tribute to the Mongol khagan.



Genghis Khan c. 1158 – August 18, 1227, was the founder and first Great Khan (Emperor) of the Mongol Empire, which became the largest contiguous empire in history after his death. He came to power by uniting many of the nomadic tribes of Northeast Asia. After founding the Empire and being proclaimed *Genghis Khan* (an honorary title possibly derived from

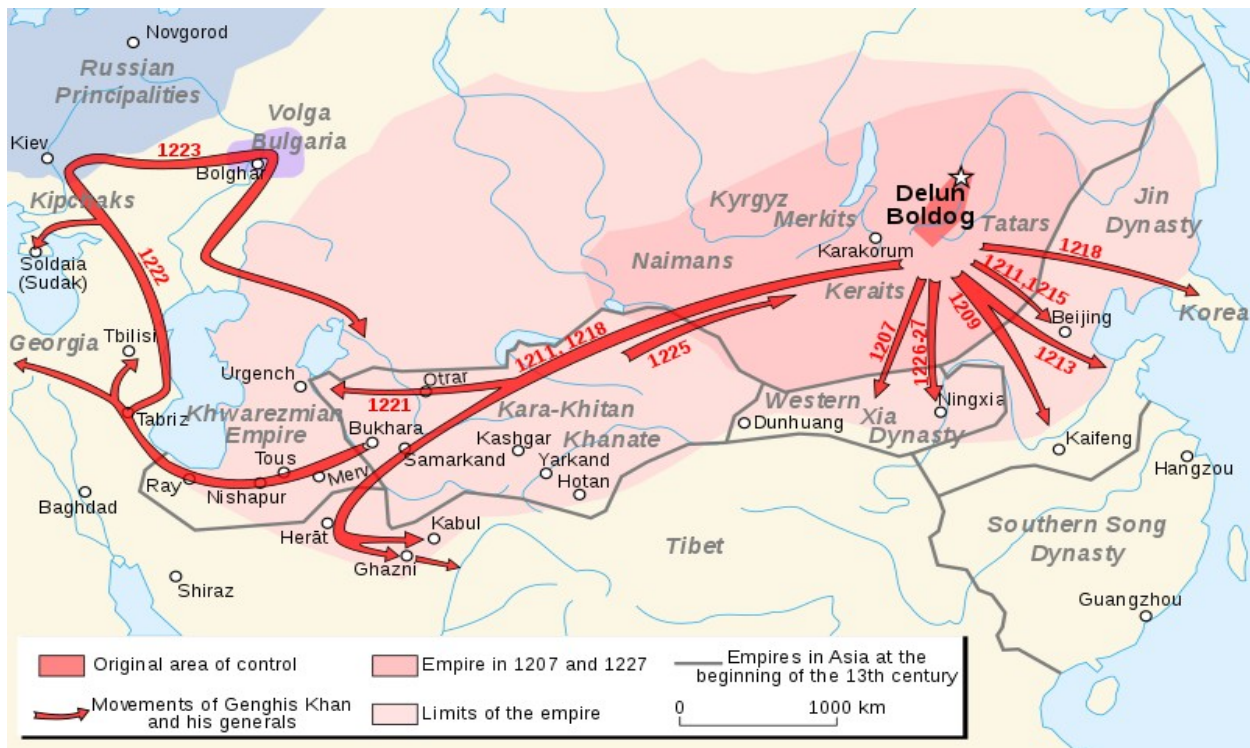
the Turkic "*tengiz*" — sea, meaning "the oceanic, universal ruler"), he launched the Mongol invasions that conquered most of Eurasia, reaching as far west as Poland in Europe and the Levant in the Middle East. Campaigns initiated in his lifetime include those against the Qara Khitai, Khwarezmia, and the Western Xia and Jin dynasties, and raids into Medieval Georgia, the Kievan Rus', and Volga Bulgaria. These campaigns were often accompanied by large-scale massacres of the civilian populations, especially in the Western Xia and Khwarazmian-controlled lands. Because of this, he is often depicted in a negative light by historians from these areas. By way of contrast, he was seen as a liberator by the buddhist Uyghur kingdom of Qocho, which willingly left the Qara Khitai empire to become a Mongol vassal. Genghis Khan was also portrayed positively by early Renaissance sources due to the incredible spread of culture, science and technological ideas by the Mongol Empire. By the end of his life, the Mongol Empire occupied a substantial portion of Central Asia and China. Due to his exceptional military successes, Genghis Khan is often considered to be one of the greatest conquerors of all time.

Before Genghis Khan died, he assigned Ögedei Khan as his successor. Later his grandsons split his empire into khanates. Genghis Khan died in 1227 after defeating the Western Xia. By his request, his body was buried in an unknown location somewhere in Mongolia.^[14] His descendants extended the Mongol Empire across most of Eurasia by conquering or creating vassal states in all of modern-day China, Korea, the Caucasus, Central Asia, and substantial portions of Eastern Europe and Southwest Asia. Many of these invasions repeated the earlier large-scale slaughters of local populations. As a result, Genghis Khan and his empire have a fearsome reputation in local histories.

According to *The Secret History of the Mongols*, Genghis and his successor, Ögedei Khan, ordered their general Chormaqan to attack Baghdad. In 1236, Chormaqan led a division of the Mongol army to Irbil, which remained under Abbasid rule. Further raids on Irbil and other regions of the caliphate became nearly annual occurrences. were not always successful, with Abbasid forces defeating the invaders in 1238 and 1245. The conquests and leadership of Genghis Khan included widespread devastation and mass murder, and he, along with the Mongols in general, perpetrated what has been called ethnocide and genocide.

Despite their successes, the Abbasids hoped to come to terms with the Mongols and by 1241 had adopted the practice of sending an annual tribute to the court of the khagan. Envoys from the Caliph were present at the coronation of Güyük Khan as khagan in 1246 and that of Möngke Khan in 1251. During his brief reign, Güyük insisted that the Caliph Al-Musta'sim fully submit to Mongol rule and come personally to Karakorum. Blame for the Caliph's refusal and for other resistance offered by the

Abbasids to increased attempts by the Mongols to extend their power was placed by the khagans on Chormaqan's lieutenant and successor, Baiju.



Hulagu's Expedition

Planning

In 1257, Möngke resolved to establish firm authority over Mesopotamia, Syria, and Persia. The khagan gave his brother, Hulagu, authority over a subordinate khanate and army, the Ilkhanate, and instructions to compel the submission of various Muslim states, including the caliphate. Hulagu Khan, also known as Hülegü or Hulegu, was a Mongol ruler who conquered much of Western Asia. Son of Tolui and the Keraite princess Sorghaghtani Beki, he was a grandson of Genghis Khan and brother of Ariq Böke, Möngke Khan, and Kublai Khan. Hulagu's army greatly expanded the southwestern portion of the Mongol Empire, founding the Ilkhanate of Persia, a precursor to the eventual Safavid dynasty, and then the modern state of Iran. Under Hulagu's leadership, the siege of Baghdad (1258) destroyed Baghdad's standing in the Islamic Golden Age and weakened Damascus, causing a shift of Islamic influence to the Mamluk Sultanate in Cairo and ended the Abbasid Dynasty.



Persian painting (14th century) of Hülegü's army besieging a city. Note use of the siege engine

Though not seeking the overthrow of Al-Musta'sim, Möngke ordered Hulagu to destroy Baghdad if the Caliph refused his demands of personal submission to Hulagu and the payment of tribute in the form of a military detachment, which would reinforce Hulagu's army during its campaigns against Persian Ismaili states.

In preparation for his invasion, Hulagu raised a large expeditionary force, conscripting one out of every ten military-age males in the entirety of the Mongol Empire, assembling what may have been the most numerous Mongol army to have existed and, by one estimate, 150,000 strong.¹ Generals of the army included the Oirat administrator Arghun Agha, Baiju, Buqa Temür, Guo Kan, and Kitbuqa, as well as Hulagu's brother Sunitai and various other warlords. The force was also supplemented by Christian forces, including the King of Armenia and his army, a Frankish contingent from the Principality of Antioch, and a Georgian force, seeking revenge on the Muslim Abbasids for the sacking of their capital, Tiflis, decades earlier by the Khwarazm-Shahs. About 1,000 Chinese artillery experts accompanied the army, as did Persian and Turkic auxiliaries, according to Ata-Malik Juvayni, a contemporary Persian observer.

Early campaigns against the Nizaris

Hulagu led his army first to Persia, where he successfully campaigned against the Lurs, the Bukhara, and the remnants of the Khwarezm-Shah dynasty. After subduing them, Hulagu directed his attention toward the Nizari Ismailis and their Grand Master, Imam Ala al-Din Muhammad,

who had attempted the murder of both Möngke and Hulagu's friend and subordinate, Kitbuqa. Though the Order of Assassins failed in both attempts, Hulagu marched his army to their stronghold of Alamut, which he captured. The Mongols later executed the Assassins' Grand Master, Imam Rukn al-Din Khurshah, who had briefly succeeded 'Ala al-Din Muhammad from 1255-1256.

Assasination attempts by the Ismailis: Certain religious groups were also seen as anti-Mongol or subversive and hence eliminated. The Isma'ilis, or "Assassins," a sect of Shi'ite Muslims, had assassinated Mongol officials. The Assassins attack in 1251 was probably aimed at Mongke Khan. Edwin Black in *Banking on Baghdad* (2004), citing three other sources, says that the Assassins, sent 400 of their best to kill the ruling khan in the name of Islam. The khan's many bodyguards and spies foiled the conspiracy and blamed the entire Islamic establishment. In 1251, Grand Khan Mongke made the decision. Baghdad was to be demolished.

When the Mongols advanced on the Abbasid Caliphate in January 1258, the Caliph not only refused to submit but was openly defiant. As the capital, Baghdad, was ill-equipped to defend itself, this proved to be extremely foolish and all resistance was overcome in February 1258. The destruction wrought was almost complete and included the House of Wisdom. According to witnesses, so many texts were destroyed that the river ran black with ink. Unknown hundreds of thousands were slaughtered (so the river is also described as having run red with blood); spared, though, were the Christians, one likely reason being that Hulagu's mother (Sorghaghtani Beki) and wife (Doqуз Khatun) were both Christians.

A Weak-Willed Caliph in Thirteenth-Century Baghdad

In the year 1242, al-Musta'sim became the 37th caliph in the Abbasid line. Baghdad's glory days were behind it. By this stage, the Abbasid caliphs were largely figureheads, propped up by outside forces. If they were important at all, it was as the inheritors of Islamic orthodoxy and as beacons of cultural greatness, but not as a political power to be obeyed nor a military force to be feared. Indeed, the Abbasids already were in the habit of paying an annual tribute to the Mongols. Despite this, the city was still large and prosperous.

A weak-willed, even dissolute character, al-Musta'sim was happier hanging out with musicians and drinking wine than he was ruling...

Alas for Baghdad, the court of history doesn't rate the caliph as the greatest of his line. A weak-willed, even dissolute character, al-Musta'sim was happier hanging out with musicians and drinking wine than he was ruling an already weakened empire. In 1251, the Abbasids sent a delegation to pay

homage on the coronation of Hulagu's brother, Mongke, when he became the Great Khan, but this was no longer considered enough.

Mongols Demand Submission by Abbasid Caliph al-Mustasim



Mongke Khan receiving an audience in Karakorum. (Image: Abdullâh Sultân (atelier). Shîrâz - Bibliothèque nationale de France. Département des Manuscrits. Division orientale. Supplément persan 206, fol. 101/Public domain)

Mongke insisted that the Abbasid Caliph al-Musta'sim come in person to Karakorum, the 13th century capital of the Mongol Empire, in the north of modern Mongolia, to fully submit to Mongol rule. The Caliph al-Musta'sim refused to do so. The final showdown between the Mongols and the Abbasids was set. With the Mongol horde marching on Baghdad, a clash was inevitable, although this wouldn't be the first encounter between the Abbasids and the Mongols.

In the recent past, the Abbasids had managed a couple of small-scale military victories against Mongol forces; however, these were soon overturned and weren't part of any trend of a militarily resurgent Abbasid Empire. Their days of martial glory were long gone. Adding fuel to the fire, al-Musta'sim is said to have slighted Shia Muslims by various acts and decrees. He should have known better, as his grand vizier, or senior advisor, was himself a Shia Muslim. This vizier is said to have sided with the Mongols, encouraging their takeover of the city, perhaps imagining that he'd be given control of Baghdad by a grateful Hulagu. If this is what he thought, he didn't know anything about Hulagu.

A Difficult Decision for the Caliph to Surrender to the Mongols

The caliph was faced with a choice between surrendering to the Mongol leader and presumably saving his city, or building up his army, and riding out to meet the invading warriors in combat. It likely never crossed the caliph's mind that he should probably surrender rather than send threats to Hulagu. Al-Musta'sim discovered a third option: Doing nothing.

Baghdad was surrounded, and al-Musta'sim realized too late that the Mongol army was far larger and stronger than he'd been told. The rest of the Muslim world wasn't about to rush to his rescue either. The siege of Baghdad began on January 29, 1258. The Mongols quickly built a palisade and ditch and brought siege engines, such as covered battering rams that protected their men from the defenders' arrows and other missiles, and catapults to attack the city's walls. At this stage, al-Musta'sim made a last-ditch attempt to negotiate with Hulagu and was rebuffed. Al-Musta'sim surrendered Baghdad to Hulagu five days later, on February 10. Adding to the distress of those inside the city, Hulagu and his horde didn't make any attempt to enter the city for three days.

A Glimmer of Compassion for Baghdad Christians



Nestorian priests on Palm Sunday. Nestorianism was a form of Christianity that had significant success in Asia. Hulagu's mother and favorite wife were Nestorians.

The Fierce Mongol Warriors

Contemporary chroniclers tell us that Mongol warriors were most comfortable in the saddle, literally, it seems. If they had to move more than a hundred yards, or so, they'd jump on a horse and ride. Also, all warriors

owned numerous mounts, allowing them to cover larger distances than more traditional cavalry found in the Near East and Europe. While they rode light into battle, the Mongols used harnessed oxen to pull their heavier and more cumbersome possessions from place to place.

An important facet of the Mongol way of war and conquest was their use of terror as a tactic. The banging of metal pots and the rattling of bells was the usual way of announcing the start of a battle. This created such a din that defenders of a city under siege would find it almost impossible to hear their officers' commands.



Reconstruction of a Mongol warrior. (Image: William Cho - Genghis Khan: The Exhibition/Public domain)

Whenever they entered new territory, the Mongols would offer the local rulers an opportunity to surrender. But in the language of many a salesman, this was a one-time offer. For those foolish enough not to surrender immediately, conquest and destruction without quarter would be their lot, and the people of Baghdad knew this.

Setting the Scene for Catastrophe Before the Sack of Baghdad

In 1206, just 52 years before the Sack of Baghdad, the Mongol Empire was formed and led by the legendary Genghis Khan. Khan is originally a Mongolian word that means military leader, or sovereign, a king, in English. Being accepted as the Great Khan effectively elevated Genghis to the status of an emperor. His grandsons now ruled the Mongolian Empire. In addition to Hulagu Khan, who led the attack against Baghdad, there was Kublai Khan, conqueror of China, and Mongke Khan, who became the Great Khan and sent his brother Hulagu to Baghdad.



Hulagu Khan leading his army into battle. (Image: Sayf al-Vâhidî. Hérât. Afghanistan - Bibliothèque nationale de France. Département des Manuscrits. Division orientale. Supplément persan 1113, fol. 177/Public domain)

Hulagu's march to Baghdad

After defeating the Assassins, Hulagu sent word to Al-Musta'sim, demanding his acquiescence to the terms imposed by Möngke. Al-Musta'sim refused, in large part due to the influence of his advisor and grand vizier, Ibn al-Alkami. Historians have ascribed various motives to al-Alkami's opposition to submission, including treachery and incompetence, and it appears that he lied to the Caliph about the severity of the invasion, assuring Al-Musta'sim that, if the capital of the caliphate were to be endangered by a Mongol army, the Islamic world would rush to its aid.

Although he replied to Hulagu's demands in a manner that the Mongol commander found menacing and offensive enough to break off further negotiation, Al-Musta'sim neglected to summon armies to reinforce the troops at his disposal in Baghdad. Nor did he strengthen the city's walls. By January 11 the Mongols were close to the city, establishing themselves on both banks of the Tigris River so as to form a pincer around the city. Al-Musta'sim finally decided to do battle with them and sent out a force of 20,000 cavalry to attack the Mongols. The cavalry were decisively defeated by the Mongols, whose sappers breached dikes along the Tigris River.

The Abbasid caliphate could supposedly call upon 50,000 soldiers for the defense of their capital, including the 20,000 cavalry under al-Musta'sim. However, these troops were assembled hastily, making them poorly equipped and disciplined. Although the caliph technically had the authority to summon soldiers from other Muslim empires to defend his realm, he neglected or lacked the ability to do so. His taunting opposition had lost him the loyalty of the Mamluks, and the Syrian emirs, whom he supported, were busy preparing their own defenses.

On January 29, the Mongol army began its siege of Baghdad, constructing a palisade and a ditch around the city. Employing siege engines and catapults, the Mongols attempted to breach the city's walls, and, by February 5, had seized a significant portion of the defenses. Realizing that his forces had little chance of retaking the walls, Al-Musta'sim attempted to open negotiations with Hulagu, who rebuffed the Caliph. Around 3,000 of Baghdad's notables also tried to negotiate with Hulagu but were murdered. Five days later, on February 10, the city surrendered, but the Mongols did not enter the city until the 13th, beginning a week of massacre and destruction. Hulagu's Mongol army set out for Baghdad in November 1257. Once near the city he divided his forces to threaten the city on both the east and west banks of the Tigris. Hulagu demanded surrender, but the caliph, Al-Musta'sim, refused. Due to the treason of Abu Alquma, an advisor to Al-Musta'sim, an uprising in the Baghdad army took place and Siege of Baghdad began. The attacking Mongols broke dikes and flooded the ground behind the caliph's army, trapping them. Much of the army was slaughtered or drowned.

The Mongols under Chinese general Guo Kan laid siege to the city on January 29, 1258, constructing a palisade and a ditch and wheeling up siege engines and catapults. The battle was short by siege standards. By February 5 the Mongols controlled a stretch of the wall. The caliph tried to negotiate but was refused. On February 10 Baghdad surrendered. The Mongols swept into the city on February 13 and began a week of destruction. The Grand Library of Baghdad, containing countless precious historical documents and books on subjects ranging from medicine to astronomy, was destroyed. Citizens attempted to flee but were intercepted by Mongol soldiers.

Death counts vary widely and cannot be easily substantiated: A low estimate is about 90,000 dead; higher estimates range from 200,000 to a million. The Mongols looted and then destroyed. Mosques, palaces, libraries, hospitals — grand buildings that had been the work of generations — were burned to the ground. The caliph was captured and forced to watch as his citizens were murdered and his treasury plundered. *Il Milione*, a book on the travels of Venetian merchant Marco Polo, states that Hulagu starved the caliph to death, but there is no corroborating evidence for that. Most historians believe the Mongol and Muslim accounts that the caliph was rolled up in a rug and the Mongols rode their horses over him, as they believed that the earth would be offended if touched by royal blood. All but one of his sons were killed. Baghdad was a depopulated, ruined city for several centuries. Smaller states in the region hastened to reassure Hulagu of their loyalty, and the Mongols turned to Syria in 1259, conquering the Ayyubid dynasty and sending advance patrols as far ahead as Gaza. A thousand squads of northern Chinese sappers accompanied the Mongol Khan Hulagu during his conquest of the Middle East



Charge of the Mongol Hoarde

Destruction of Baghdad: Many historical accounts detailed the cruelties of the Mongol conquerors. Baghdad was a depopulated, ruined city for several decades and only gradually recovered some of its former glory.

Contemporary accounts state Mongol soldiers looted and then destroyed mosques, palaces, libraries, and hospitals. Priceless books from Baghdad's thirty-six public libraries were torn apart, the looters using their leather covers as sandals. Grand buildings that had been the work of generations were burned to the ground. The House of Wisdom (the Grand Library of Baghdad), containing countless precious historical documents and books on subjects ranging from medicine to astronomy, was destroyed. Claims have been made that the Tigris ran red from the blood of the scientists and philosophers killed. Tales of the destruction of books - tossed into the Tigris such that the water turned black from the ink - seem to originate from the 14th century.



Citizens attempted to flee, but were intercepted by Mongol soldiers who killed in abundance, sparing neither women nor children. Martin Sicker writes that close to 90,000 people may have died. Other estimates go much higher, but are almost certainly exaggerated.

The caliph Al-Musta'sim was captured and forced to watch as his citizens were murdered and his treasury plundered. According to most accounts, the caliph was killed by trampling. The Mongols rolled the caliph up in a rug, and rode their horses over him, as they believed that the earth would be offended if it were touched by royal blood. All but one of Al-Musta'sim's sons were killed, and the sole surviving son was sent to Mongolia, where Mongolian historians report he married and fathered children, but played no role in Islam thereafter (see The end of the Abbasid dynasty).

Hulagu had to move his camp upwind of the city, due to the stench of decay from the ruined city.

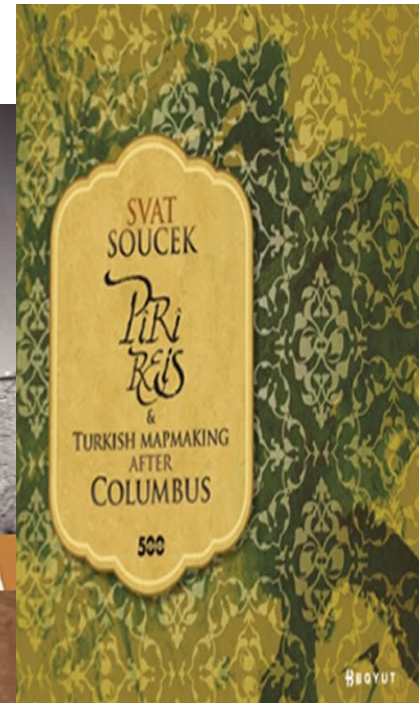
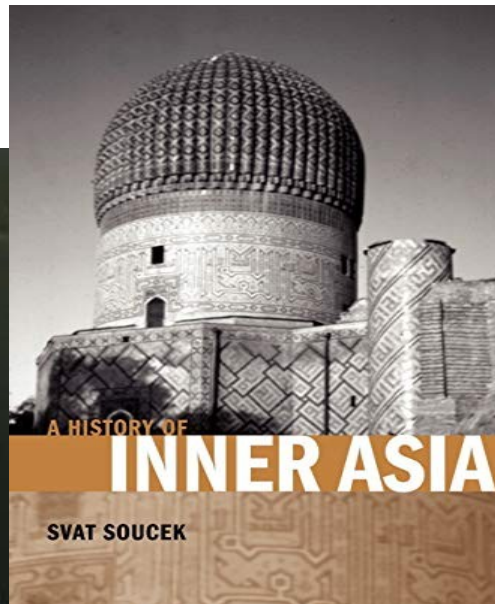
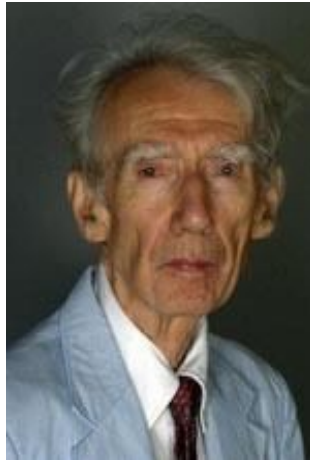
The historian David Morgan has quoted Wassaf describing the destruction: "They swept through the city like hungry falcons attacking a flight of doves, or like raging wolves attacking sheep, with loose reins and shameless faces, murdering and spreading terror...beds and cushions made of gold and encrusted with jewels were cut to pieces with knives and torn to shreds.

Those hiding behind the veils of the great Harem were dragged...through the streets and alleys, each of them becoming a plaything...as the population died at the hands of the invaders." The level of pillage, destruction, and atrocities that Baghdad had to go through is unimaginable. The Caliph was immediately executed, while the locals were massacred on a large scale. It was during this siege that all the books from the House of Wisdom were thrown into the Tigris River. Many books were ripped apart and burnt, while their leather covers were kept to make sandals. In his book *History of Libraries of the Western World*, Michael H. Harris wrote that the number of books thrown into the river was so enormous that a bridge could be formed using those books in water alone — supporting a man mounted on a horse. The only books that remained from this library were the ones that Nasir-al-Din-al-Tulsi took along with him to Maragheh before the attack.

Some modern historians have cast some doubt on the vehemently anti-Mongol medieval sources. George Lane (SOAS), for example, doubts the Grand Library was destroyed as the learned members of the Mongol command such as Nasir al-Din Tusi would not have allowed it, and that disease was the major cause of death. Primary sources state that Tusi saved thousands of volumes and installed them into a building in Marāgheh.

Causes for agricultural decline

Not only the library but the entire countryside lay in waste. Some historians believe that the Mongol invasion destroyed much of the irrigation infrastructure that had sustained Mesopotamia for many millennia. Canals were cut as a military tactic and never repaired. So many people died or fled that neither the labour nor the organization were sufficient to maintain the canal system. It broke down or silted up. This theory was advanced (not for the first time) by historian Svatopluk Souček in his 2000 book, *A History of Inner Asia*. Svat Soucek (full name Svatopluk Souček) is a compiler and author of works in relation to Central Asia, and Central Asian studies. He was born in Prague, Czech Republic. He has a PhD in Turkish and Arabic studies from Columbia University. He worked in the Oriental Division of the New York Public Library,^[1] and as a professor of history at Princeton University, specialising in historical cartography.^[2] His works include *Piri Reis and Turkish Mapmaking After Columbus* (1996), *A History of Inner Asia* (2000), *The Persian Gulf: Its Past and Present* (2008), and *The History of the Maritime Wars of the Turks* (2012).



Despite the massacres at Baghdad and elsewhere, evidence suggests that there is no reason to suppose that Hulagu had a particular hatred for Muslims as this site claims. His army included Muslim soldiers, he left compliant Muslim communities largely untouched and he allowed the Muslim scholar Nasir al-Din al-Tusi to seek out other scholars who had fled the Mongol onslaughts, and authorized paying them salaries to continue their work in Maraghah in Iran.

The Mongols were a sort of enlightened people, but they really didn't take lightly any threat to their rule. The Abassids didn't submit to the Mongol terms, during the late negotiation they apparently offended the Mongols.

That never ended well for anyone during that time period. They did not need anything else that show the world nothing could stop them while they're attacking you. The most epic library of all time will not stop them in their track. This was an example that defying them was useless. And they had the example of Genghis Khan, who would spare cities that surrendered but "make an example" of the ones that resisted. Some transcripts or books from the House of Wisdom were taken to the Mongol Empire. Where exactly they ended up is unknown.

Terror and Destruction: Genghis Khan, also known as Chinggis Khan and formerly known as Temujin, and his generals and successors preferred to offer their enemies the chance to surrender without resistance to avoid war, to become vassals by sending tribute, accepting Mongol residents and/or contributing troops. The Khans guaranteed protection only if those who submitted to Mongol rule were obedient. Sources record massive destruction, terror and death if there was resistance.

Terror

The success of Mongol tactics hinged on fear to induce capitulation of enemy populations. From the perspective of modern theories of international relations, Quester suggested, "Perhaps terrorism produced a fear that immobilized and incapacitated the forces that would have resisted." Although perceived as being bloodthirsty, the Mongol strategy of "surrender or die" still recognized that conquest by capitulation was more desirable than continually being forced to expend soldiers, food, and money to fight every army and sack every place on the campaign's route. David Nicole notes in *The Mongol Warlords* that "terror and mass extermination of anyone opposing them was a well-tested Mongol tactic". The alternative to submission was total war: resistance caused Mongol leaders to order the collective slaughter of populations and the destruction of property. Such was the fate of resisting Muslim communities during the invasions of the Khwarezmid Empire.

The Mongols frequently faced states with armies and resources greater than their own. In the beginning, Temujin, the birthname of Genghis Khan, started off with a band of youths and some women, and he later had troops of 20,000 that initially faced the city states and interests of the Kin domain, which mainly included China, with then probably a 2-million-strong army, each city being populated with hundreds of thousands of inhabitants, and simply invading all of them was out of the question. Furthermore, a supine nation was more desirable than a sacked one. While both provided the same territorial gains, the former would continue to provide taxes and conscripts long after the conflict ended, but the latter would be depopulated and economically worthless once available goods and slaves were seized.

Thus, whenever possible, by using the "promise" of wholesale execution in case of resistance, Mongol forces made efficient conquests, which, in turn, allowed them to attack multiple targets and redirect soldiers and material where they were the most needed. Apart from the human casualties, there was the destruction of the 500-year old city itself. Fires were set so that the fragrant scent of sandalwood and other aromatics was smelled up to 30 miles away. If you're looking for an example of a city razed to the ground, Baghdad in 1258 would be a good choice. After a week, Hulagu ordered his camp out of the city, and moved upwind, away from the stench of rotting corpses.

Hulagu left Baghdad a broken and depopulated city. Even if those left alive had wanted to rebuild, they lacked the numbers, the resources, and the skills to do so. The death and destruction were such that it would be more than a decade before anyone from Baghdad performed the *hajj* pilgrimage to Mecca. In attacking Baghdad, Hulagu also destroyed the network of canals that irrigated the arable land thereabouts. Famine and plague followed the Mongol horde to Baghdad as elsewhere. Their scorched-earth

tactics make it easy to see why they're often tagged with a reputation as the most destructive of all the great empires.

The reputation of guaranteed wholesale enactment on those who fought them was also the primary reason that the Mongols could hold vast territories long after their main force had moved on. Even if the tumens (tyumens) were hundreds or thousands of miles away, the conquered people would usually not dare to interfere with the token Mongol occupying force since they feared a likely Mongol return.

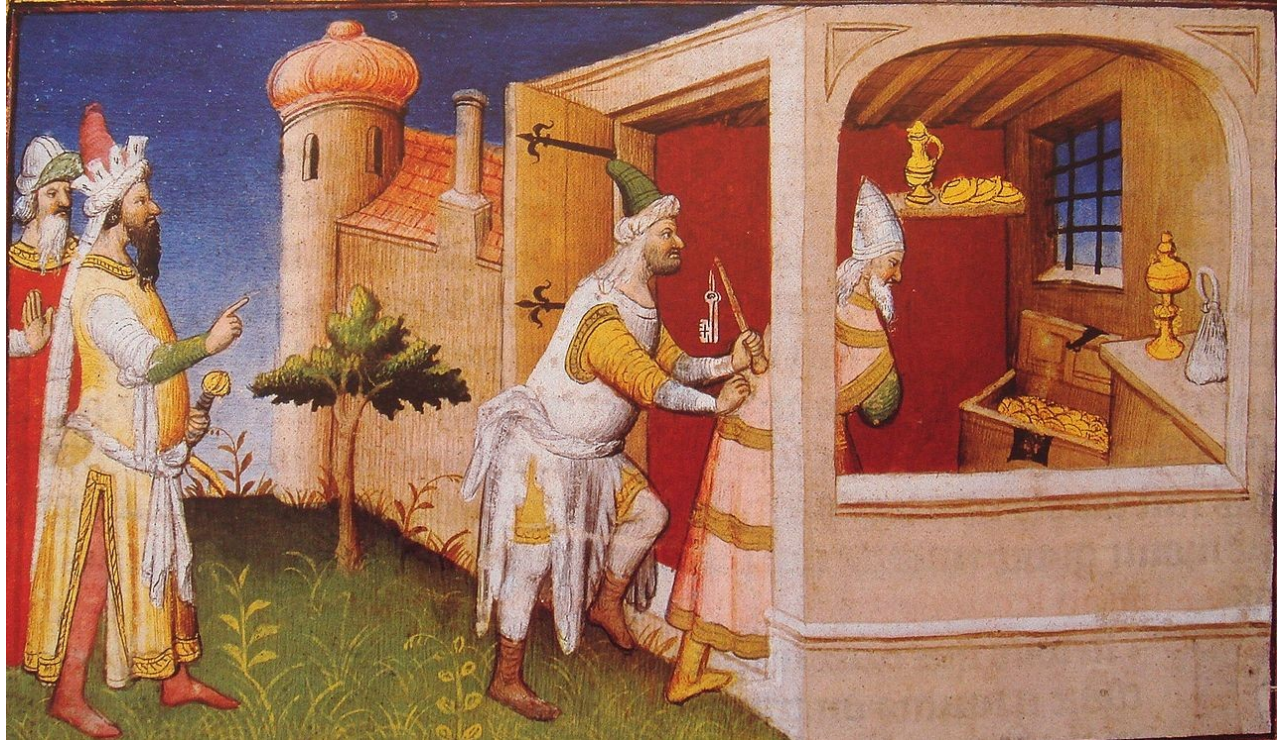
The linchpin of Mongol success was the widespread perception by their enemies that they were facing an insurmountable juggernaut that could be placated only by surrender. The Mongols may have counted on reports of horrifying massacres and torture to terrify their foes. The goal was to convince all that the costs of surrendering were not nearly onerous enough to risk an unwinnable war, with a guarantee of complete annihilation if they lost. That strategy was adopted partly because of the Mongols' lesser numbers. If their opponents were not sufficiently subdued, there was a greater chance they could rise again and attack the Mongols when the latter left to deal with other settlements. The Mongols thus technically covered their rear and flanks and avoided a situation in which they would have to again engage a people that had already fought and been subdued. The Mongols thus saved resources from an unnecessary second engagement.

As Mongol conquests spread, that form of psychological warfare proved effective at suppressing resistance to Mongol rule. There were tales of lone Mongol soldiers riding into surrendered villages and executing peasants at random as a test of loyalty. It was widely known that a single act of resistance would bring the entire Mongol army onto a town to obliterate its occupants. Thus, they ensured obedience through fear. Peasants frequently appear to have joined Mongol troops or to have readily accepted their demands. The Caliph al-Musta'sim was forced to watch these murders and the plundering of his treasury and palaces. Hulagu taunted him that, with so much gold and so many jewels, he'd have been better off spending some of these riches on building up a bigger army. As for how the caliph met his end, one account says he was locked in his treasury, surrounded by his wealth, and left alone to starve to death. As colorful as this account is, it doesn't sound likely, given the widespread looting that took place, nor is it corroborated by any sources.

A more plausible account, as reported by several chroniclers, goes like this: Hulagu had been warned by his astronomers that royal blood shouldn't be spilled onto the earth. If it were, the earth would reject it, and earthquakes and natural destruction would follow. If we consider his record, one might not think Hulagu an especially cautious man. However, in this case, he plotted the safer course. The caliph was rolled in carpets, which would

catch any blood spilled, and then he was trampled to death by his cavalry. For the first time since the death of Muhammad, 636 years earlier, Islam had no Caliph whose name could be quoted in Friday prayers.

Death of a Caliph



According to legend, Hulagu locked the Caliph in his own treasury, surrounded by his wealth, and left him alone to starve to death. (Image: Maître de la Mazarine/Public domain)

Rebuilding of Baghdad: Hulagu left 3,000 Mongol soldiers behind to rebuild Baghdad. Ata-Malik Juvayni was later appointed governor of Baghdad, Lower Mesopotamia, and Khuzistan after Guo Kan went back to the Yuan dynasty to assist Kublai's conquest over the Song dynasty. The Mongol Hulagu's Nestorian Christian wife, Dokuz Khatun successfully interceded to spare the lives of Baghdad's Christian inhabitants. Hulagu offered the royal palace to the Nestorian Catholicos Mar Makikha, and ordered a cathedral to be built for him.

Initially, the fall of Baghdad came as a shock to the whole Muslim world; after many years of utter devastation, the city became an economic center where international trade, the minting of coins and religious affairs flourished under the Ilkhans. The chief Mongol darughachi was thereafter stationed in the city.

For all what we know the Mongolian Empire was not simply a collection of brainless brutes, but they had intense knowledge of their opponents: descriptions, maps, information about the technology, culture and especially competing groups of people which can be used to their advantage. Also

their military leadership was efficient, knowledgeable and adaptable. Khublai Khan was very interested in adapting and fostering Chinese and Muslim knowledge.

So why did the Mongols destroy the libraries when they raided Baghdad in 1258? Shouldn't the vast knowledge available about the lands in the West, Europe and Africa and the available technology have tempted them to plunder and evaluate the scriptures for their own purposes? An important reason was to destroy those Muslims who opposed the Mongols. This meant that their mosques and Islamic texts were also targeted, especially those of the Isma'ilis, a Shi'ite sect which had openly defied the Mongols and which had probably been involved in an attempt on the life Mongke Khan. It should be noted, though, that the destruction of Baghdad, an 'Arab-Muslim imperial capital' was almost totally indiscriminate and can thus be seen as a message to other cities considering resistance.

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The Mongol rulers presented the clergy of the recognized religions — Christianity, Buddhism, Taoism (Daoism), and Islam — a deal: In return for their prayers to God for the Mongol rulers, the rulers would grant the clergy equal status and exemption from military service and taxes. However, there were exceptions and those who resisted could expect harsh treatment. Certain religious groups were also seen as anti-Mongol or subversive and hence eliminated. The Isma'ilis, or "Assassins," a sect of Shi'ite Muslims, had assassinated Mongol officials. The Assassins attack in 1251 was probably aimed at Mongke Khan. Edwin Black in *Banking on Baghdad* (2004), citing three other sources, says

The Assassins, according to accounts, sent 400 of their best to kill the ruling khan in the name of Islam. The khan's many bodyguards and spies foiled the conspiracy and blamed the entire Islamic establishment. In 1251, Grand Khan Mongke made the decision. Baghdad was to be demolished.

We may remember that the another assignment was given to Hulagu Khan. Alamut, an Assassin stronghold, was taken him in 1256 and its library destroyed. In particular, "every manuscript which related to Ismailian" was destroyed. Thousands of Isma'ilis were also massacred.

When the Mongols advanced on the Abbasid Caliphate in January 1258, the Caliph not only refused to submit but was openly defiant. As the

capital, Baghdad, was ill-equipped to defend itself, this proved to be extremely foolish and all resistance was overcome in February 1258. The destruction wrought was almost complete and included the House of Wisdom. According to witnesses, so many texts were destroyed that the river ran black with ink. Unknown hundreds of thousands were slaughtered (so the river is also described as having run red with blood); spared, though, were the Christians, one likely reason being that Hulagu's mother (Sorghaghtani Beki) and wife (Doquz Khatun) were both Christians.

Despite the massacres at Baghdad and elsewhere, evidence suggests that there is no reason to suppose that Hulagu had a particular hatred for Muslims as this site claims. His army included Muslim soldiers, he left compliant Muslim communities largely untouched and he allowed the Muslim scholar Nasir al-Din al-Tusi to seek out other scholars who had fled the Mongol onslaughts, and authorized paying them salaries to continue their work in Maragha in Iran.

The Destruction of the Baikut al Hikmah: Mongol campaigns in Northern China, Central Asia, Eastern Europe and the Middle East caused extensive destruction, but there are no exact figures available for that time. The cities such as Balkh, Bamiyan, Herat, Kiev, Baghdad, Nishapur, Merv, Konye-Urgench, Lahore, Ryazan, Chernigov, Vladimir and Samarkand suffered serious devastation by the Mongol armies. For example, there is a noticeable lack of Chinese literature from the Jin dynasty, predating the Mongol conquest, and in the Siege of Baghdad (1258), libraries, books, literature, and hospitals were burned: some of the books were thrown into the river in quantities sufficient to turn the Tigris black with ink for several months". Tales of the destruction of books - tossed into the Tigris such that the water turned black from the ink - seem to originate from then. "In one week, libraries and their treasures that had been accumulated over hundreds of years were burned or otherwise destroyed. So many books were thrown into the Tigris River, according to one writer, that they formed a bridge that would support a man on horseback."

"The End of the House of Wisdom Library: After the invasion of Baghdad by the Mongols in (656 AH-1258 AD) they wrecked the library's private and public closets of books, manuscripts, maps, observatories...etc. they burned majority of the collections whilst others were thrown into the Tigris river, some say that the Mongols have built their barns using books instead of clay."

The Mongols' destruction of the irrigation systems of Iran and Iraq turned back millennia of effort in building irrigation and drainage infrastructure in these regions. The loss of available food as a result may have led to the death of more people from starvation in this area than the actual battle did. The Islamic civilization of the Persian Gulf region did not recover until after

the Middle Ages. The destruction of the areas related to the Institute was so thorough that very little in the way of archaeological evidence for the House of Wisdom is present. Most of the knowledge about it is derived from the works of contemporary scholars of the era such as Al-Tabari and Ibn al-Nadim. Since there is a lack of physical evidence there are many scholars that question the existence of the House of Wisdom.

Dispute: Yale University Arabist Dimitri Gutas disputes the existence of the House of Wisdom as is its form and function. He posits in his 1998 book that "House of Wisdom" is a translation error from *Khizanat al-Hikma*, which he asserts simply means a storehouse, and that there are few sources from the era during the Abbasid Era that mention the House of Wisdom by the name *Bayt al-Hikma*.^[1] Gutas asserts that, without consistent naming conventions, a physical ruin, or corroborating texts, the phrase "House of Wisdom" may just as well have been a metaphor for the larger Academic community in Baghdad rather than a physical academy specializing in translation work. Gutas mentions that in all of the Graeco-Arabic translations none of them mention the House of Wisdom, including the notable Hunayn ibn Ishaq. There is also no proof that the Sultan ever held open debates among scholars in the library since that would not have been socially acceptable. This theory is debatable, owing to the destruction of the Round city of Baghdad and conflicting sources in both academic texts and poetry. It is likely, given the Abbasid Caliphs' patronage of the arts and sciences, that an extensive library existed in Baghdad, and that scholars could have access to such texts, judging by the volume of work produced by scholars centered in Baghdad. There is a strong chance that the library was only used to preserve history from the Sassanian Dynasty and the translations that were done there were only done to achieve that goal. Once the Abbasids took over, they most likely continued this tradition with the added goal of pursuing both astrology and astronomy.

In the end one can say that Hulagu has ruined almost all books that have been translated or authored by distinguished scholars and scientists, the works that were used to spread culture and knowledge and wisdom among the Muslims and non-Muslims were gone into dust. As a result the world witnessed the fall of one the preserving libraries of human intellect and human civilization of that time which has had a calamitous impact on the Islamic civilizational heritage. The legacy of the house of wisdom library was wasted and the west did not find except Arabic sources to obtain the heritage of ancient human civilizations. The invasion of the Mongols and the destruction of the library marked the fall of Baghdad and ultimately the collapse of the Abbasid Caliphate that had left the Muslim world in crisis in the years to come. Late in life, Hulagu became a Buddhist. At this moment, however, the only sign of compassion he showed was towards Baghdad's Nestorian Christian community. Nestorianism was a form of Christianity that church authorities had declared heretical in the 5th century. It stressed

that the divine and human aspects of Jesus's nature were separate. Many Nestorians had moved to Persia, where they'd lived ever since. Hulagu, upon entering Baghdad, told the Nestorians to lock themselves in their church and ordered his men not to touch them. What was the reason for this act of kindness before the bloodbath that was to follow? Simply that Hulagu's mother and his favorite wife were both Nestorian Christians.

Mongols Execute Baghdad Notables

About 3,000 of Baghdad's notables—including officials, members of the Abbasid family, and the caliph himself—pleaded for clemency. But all 3,000 were put to death without compunction...

With the Nestorians secure, Hulagu allowed his army an unfettered week of rape, pillage, and murder to celebrate their victory. About 3,000 of Baghdad's notables—including officials, members of the Abbasid family, and the caliph himself—pleaded for clemency. But all 3,000 were put to death without compunction; all, that is, except for the caliph. He was held prisoner for a little while longer, perhaps in part so that he could see the full extent of what befell his capital.

Estimates of the death toll range from 90,000 at the lowest end to one million at the other. Apart from being a conveniently round number, the population of Baghdad was around a million, and the historical record tells us not everyone was killed. Whatever the actual number, it included the army that had dared resist Hulagu's advance, and the civilians, who had no choice either way. Men, women, and children down to babes in arms were put to the sword or clubbed to death. Little mercy was shown unless it was of a quick rather than a lingering death.

LIBRARY OF ALEXANDRIA

About a 1000 years before the destruction of the baikut, one can draw a parallel from the burning of the Library of Alexandria. (Author **Preston Chesser** <https://ehistory.osu.edu/articles/burning-library-alexandria>)



Says that the loss of the ancient world's single greatest archive of knowledge, the Library of Alexandria, has been lamented for ages. But how and why it was lost is still a mystery. The mystery exists not for lack of suspects but from an excess of them.

Alexandria was founded in Egypt by Alexander the Great. His successor as Pharaoh, Ptolemy I Soter, founded the Museum (also called Museum of Alexandria, Greek Mouseion, "Seat of the Muses") or Royal Library of Alexandria in 283 BC. The Museum was a shrine of the Muses modeled after the Lyceum of Aristotle in Athens. The Museum was a place of study which included lecture areas, gardens, a zoo, and shrines for each of the nine muses as well as the Library itself. It has been estimated that at one time the Library of Alexandria held over half a million documents from Assyria, Greece, Persia, Egypt, India and many other nations. Over 100 scholars lived at the Museum full time to perform research, write, lecture or translate and copy documents. The library was so large it actually had another branch or "daughter" library at the Temple of Serapis.

The first person blamed for the destruction of the Library is none other than Julius Caesar himself. In 48 BC, Caesar was pursuing Pompey into Egypt when he was suddenly cut off by an Egyptian fleet at Alexandria. Greatly outnumbered and in enemy territory, Caesar ordered the ships in the harbor to be set on fire. The fire spread and destroyed the Egyptian fleet. Unfortunately, it also burned down part of the city - the area where the great Library stood. Caesar wrote of starting the fire in the harbor but neglected to mention the burning of the Library. Such an omission proves little since he was not in the habit of including unflattering facts while writing his own history. But Caesar was not without public detractors. If he was solely to blame for the disappearance of the Library it is very likely significant documentation on the affair would exist today.

The second story of the Library's destruction is more popular, thanks primarily to Edward Gibbon's "The Decline and Fall of the Roman Empire". But the story is also a tad more complex. Theophilus was Patriarch of Alexandria from 385 to 412 AD. During his reign the Temple of Serapis was converted into a Christian Church (probably around 391 AD) and it is likely that many documents were destroyed then. The Temple of Serapis was estimated to hold about ten percent of the overall Library of Alexandria's holdings. After his death, his nephew Cyril became Patriarch. Shortly after that, riots broke out when Hierax, a Christian monk, was publicly killed by order of Orestes the city Prefect. Orestes was said to be under the influence of Hypatia, a female philosopher and daughter of the "last member of the Library of Alexandria". Although it should be noted that some count Hypatia herself as the last Head Librarian.

Alexandria had long been known for its violent and volatile politics. Christians, Jews and Pagans all lived together in the city. One ancient writer claimed that there was no people who loved a fight more than those of Alexandria. Immediately after the death of Hierax a group of Jews who had helped instigate his killing lured more Christians into the street at night by proclaiming that the Church was on fire. When the Christians rushed out the largely Jewish mob slew many of them. After this there was mass havoc as Christians retaliated against both the Jews and the Pagans - one of which was Hypatia. The story varies slightly depending upon who tells it but she was taken by the Christians, dragged through the streets and murdered.

Some regard the death of Hypatia as the final destruction of the Library. Others blame Theophilus for destroying the last of the scrolls when he razed the Temple of Serapis prior to making it a Christian church. Still others have confused both incidents and blamed Theophilus for simultaneously murdering Hypatia and destroying the Library though it is obvious Theophilus died sometime prior to Hypatia.

The final individual to get blamed for the destruction is the Moslem Caliph Omar. In 640 AD the Moslems took the city of Alexandria. Upon learning of "a great library containing all the knowledge of the world" the conquering general supposedly asked Caliph Omar for instructions. The Caliph has been quoted as saying of the Library's holdings, "they will either contradict the Koran, in which case they are heresy, or they will agree with it, so they are superfluous." So, allegedly, all the texts were destroyed by using them as tinder for the bathhouses of the city. Even then it was said to have taken six months to burn all the documents. But these details, from the Caliph's quote to the incredulous six months it supposedly took to burn all the books, weren't written down until 300 years after the fact. These facts condemning Omar were written by Bishop Gregory Bar Hebræus, a Christian who spent a great deal of time writing about Moslem atrocities without much historical documentation.

So who did burn the Library of Alexandria? Unfortunately most of the writers from Plutarch (who apparently blamed Caesar) to Edward Gibbons (a staunch atheist or deist who liked very much to blame Christians and blamed Theophilus) to Bishop Gregory (who was particularly anti-Moslem, blamed Omar) all had an axe to grind and consequently must be seen as biased. Probably everyone mentioned above had some hand in destroying some part of the Library's holdings. The collection may have ebbed and flowed as some documents were destroyed and others were added. For instance, Mark Antony was supposed to have given Cleopatra over 200,000 scrolls for the Library long after Julius Caesar is accused of burning it.

It is also quite likely that even if the Museum was destroyed with the main library the outlying "daughter" library at the Temple of Serapis continued on. Many writers seem to equate the Library of Alexandria with the Library of Serapis although technically they were in two different parts of the city.

The real tragedy of course is not the uncertainty of knowing who to blame for the Library's destruction but that so much of ancient history, literature and learning was lost forever.

Tragedy and glory

The singular defining moment in the history of Baghdad came in 1258, when a Mongol army under the warlord Hulagu broke through, killed the last Abbasid caliph and razed the city.

***"Oh seekers of news about Baghdad, the tears will tell you ... /
Baghdad is no longer a refuge; no one is here anymore. / The crown
of the caliphate, the great monuments, / all has been burned to
ashes."***

poet Taqi al-Din,



An illustration of soldiers outside the walls of Baghdad in medieval times. The British Library / Robana via Getty Images

The history of Baghdad is marked by stunning extremes. It was at once the medieval metropolis mythologised in the *Arabian Nights* - the unrivalled global centre of power and civilisation during the Abbasid caliphate - and the scene of utter devastation - the city famously levelled by the Mongols in 1258, when an army of nomads stormed its walls, burnt its libraries, looted its treasures and put its people to the sword. Its cautionary tale of doom and the end of a golden age may be a familiar one, but no other living city can tell it so vividly. No other city can make the same sweeping claims to greatness and catastrophe.

The most complete record of the glory and tragedy of Baghdad lies in poetry. For over 1,000 years, poets have described, remembered, mocked and mourned the city. In a new anthology of more than 170 poems *Baghdad: The City in Verse*, readers in English have access for the first time to the breadth of the poetry of the city, from the eighth century to the present day. Its poetic tradition defines Baghdad. Few other cities can draw from such a deep well of verse. Certainly, none of the great world cities of our time (New York, London, Paris, Mumbai, Shanghai and the like) have anything near comparable. "Poetry and Baghdad," writes the poet Abdul Kader El Janabi in the book's afterword, "are indivisible, flowing together". Translated and edited by the Jewish scholar Reuven Snir, the selections in this tome take readers from the wine-soused revels of

late antiquity to the horror of the Mongol conquest, from the political transformations of the early 20th century to the misery and trauma caused by the American invasions. Throughout, there persists the feeling that the city is "as old as it is modern". While its poets depict Baghdad as a city in the familiar, concrete sense - bustling, cosmopolitan, callous, dirty - it also appears as a capital conscious of its place in the broad tapestry of history and myth.

According to Snir, the blossoming of urban Baghdad marked something of a departure in medieval Arabic poetry. Previously, the nomadic ethos of the desert held sway over Arabic verse, most famously in the *muallaqat*, the "hanging odes" of roaming Bedouin poets. With the founding of Baghdad as the centre of the Islamic empire and the growth of a courtly poetic culture in the capital, poetry found a new emphasis on place, a grounding in the streets, taverns and palaces of the glorious city.

And what a city it was. "Her Tigris, two banks arrayed for us like pearls in a necklace, / a crown beside a crown, a palace beside a palace," crowed al-Tahir ibn al-Muzaffar, "Her soil, musk; her water, silver; / her gravel, diamonds and jewels." Along with other artists and craftsmen, poets flocked to Baghdad. "There is nothing like Baghdad, worldly-wise and religious, / despite Time's transitions," wrote the ninth-century poet Umara ibn Aqil, "Here, life is pure, green and fresh."

Baghdad was the city on the hill, the best place to be. Like many of his peers, the eighth-century poet Muti ibn Iyas found the essence of the city in cups of wine, in its heady brand of urban hedonism. "It was morning in Baghdad, we were carousing, / stirred by a white face and deep-black eyes ... / I was still drinking when sunset arrived / between melodies of castanets and lutes." Of course, the city was not all sweetness and light. In another poem, Ibn Aqil offered a more realistic assessment of life in the muddy metropolis: "Oh Baghdad, when it rains or wind strikes, / you are nothing but dung; / when you are dry, you are only evil dust."

Baghdad continued to haunt its poets even when they weren't there. The anthology has many poems that address Baghdad from afar, as a city yearned for and missed. Harun al-Rashid, the great eighth-century caliph himself, lamented his choice to move his court to Al Raqqa outside the city: "I will forgive my beloved [Baghdad], forgiveness is my nature, / I will not forgive myself." Al-Akawwak, an early ninth century poet, mourned having to leave Baghdad. "Truly, I grieve for Baghdad, what a town! / Midst my maladies, she has protected me. / Separating from her, I was Adam / expelled from Eden." The experience of exile from Baghdad, so common in

medieval verse, sadly remains an abiding theme today, as the violence-stricken city continues to force its writers away. Baghdad becomes a city of the imagination, to be sketched with memories and fables. Snir, the Israeli editor of the anthology, is himself a Baghdadi for whom Baghdad is more a literary chimera than a lived in place; his family emigrated from the city to Israel before he was born, and he has never been back. Sometimes, the only road to Baghdad runs through the page.

The singular defining moment in the history of Baghdad came in 1258, when a Mongol army under the warlord Hulagu broke through, killed the last Abbasid caliph and razed the city. "Oh seekers of news about Baghdad," wrote the poet Taqi al-Din, "the tears will tell you ... / Baghdad is no longer a refuge; no one is here anymore. / The crown of the caliphate, the great monuments, / all has been burned to ashes."

Familiar narratives of the Mongol conquest of Baghdad are full of rich, exaggerated drama; it is often said, for instance, that the Tigris choked with the bindings of books from the city's destroyed libraries. Some of the poetry in the anthology, on the other hand, surprises the reader with its quiet power. "It is a dark, cruel catastrophe," wrote al-Majd al-Nashabi soon after the sack, "which turns a child's head and liver white."

The destruction of Baghdad ended the Abbasid caliphate and left the city and the surrounding region depopulated for centuries. It had even more lasting consequences in the realm of the poetic imagination.

In modern times, poets return again and again to the memory of the golden age of the city and its calamitous fall.

When much of the Middle East lay under European control in the early 20th century, anti-colonial Arab poets looked to the former glories of Baghdad for inspiration. "Forget Rome and Athens and all that they contain," wrote the fin-de-siècle Egyptian poet Ahmad Shawqi, "All jewels are only in Baghdad." Hafiz Ibrahim, another luminary of early 20th-century Egyptian poetry, glorified the reign of Harun al-Rashid: "In Harun al-Rashid's time we reached the skies; / people lived in harmony. / Learning adorned every neck ... / Ask what place on earth could be compared / to Baghdad under Islam."

Just as the Baghdad of Harun al-Rashid provided material for contemporary poets, so too did its inverse, the devastated Baghdad of the Mongol conquest. Troubled by the oppression and brutality he saw in 1960s Iraq, the Syro-Lebanese poet Adonis asked, "What is the difference between Baghdad 1258 and Baghdad 1969? / The first,

the Mongols destroyed; the second, her children do the same." Writing after the 2003 US invasion of Iraq, Sargon Boulus inhabited the voice of the Mongol conqueror. "Death speaks in my name / I am Hulagu: / A sword in its sheath, never resting. / Its shadow, wherever it throws itself / Begets a cloud of hungry eagles / Hovering over houses." In Boulus's poem, the Americans ("hungry eagles") find themselves cast in the image of the rapacious nomadic horde. Sadly, the arc of Baghdad's history continues to bend towards calamity.

Just as its people, in the words of the poet Abdul Kader El Janabi, "are married to catastrophe", so does Baghdad's poetry consistently grapple with the prospect of disaster. Writing in the 10th century, Ali ibn Abi Hashim saw folly in the ambitions of man: "They build and say: We shall never die, but / builders build for ruins."

It was a sharp thought even then, scything through the culture of panegyric that gushed about the glories of the Abbasid metropolis.

More than the eulogies or laments, this pensive, critical strand in the poetry of Baghdad is its most powerful. It transcends the city altogether. As the poet Adonis reminds us so resolutely:

"Baghdad is a paradise?"

- "Man is a paradise, not the place."

Article by Kanishk Tharoor is a writer based in New York. His work, which has been nominated for a National Magazine Award, has been published in the US, UK, India and the Middle East. <https://kanishktharoor.wordpress.com/2013/12/06/the-tragedy-and-glory-of-baghdad/>

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The Sack of Baghdad in 1258. (Image: Rashid-ad-Din's Gami' at-tawarih/Public domain)

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The author is an inveterate writer having published more than 20 papers on the Net. He is co-author of 2 more books on Palestine, the people of which are his first love.

Muhsin loves to cook and has mastered the cuisine of all the countries he has visited. His acumen in creating epicurean delights will be available to the readers in 2 forthcoming books on Ancient Arabian cooking and The Rainbow Cuisine of 12 countries



Muhsin (left)



Dr Uday

About the Author--- DrUDAY DOKRAS

The author has worked for 30 years in the human resources arena in India and abroad. He was Group Vice -President of MZI Group in New Delhi and has anchored Human Relations in Go Air and Hotel Holiday Inn; was General Manager-Health Human Resources at the Lata Mangeshkar Hospital and Medical college. Is currently Consultant to Gorewada

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In Sweden he anchored HR in Stadbolaget RENIA, SSSB and advisor to a multi millionaire. He has studied in Nagpur, India where he obtained degrees of Bachelor of Science, Bachelor of Arts (Managerial Economics) and Bachelor of Laws. He has done his Graduate Studies in labour laws from Canada at the Queen's University, Kingston and Doctorate from Stockholm University, Sweden.

Apart from that he has done a Management Training Program in Singapore.

A scholar of the Swedish Institute, he has been an Edvard Cassel Fund and Wineroth Fund Awardee. A scholar for the Swedish Institute for 5 years.

In 1984 he was involved with the Comparative Labour Law Project of the University of California, Los Angeles, U.S.A. He was also visiting lecturer there. In 1985 he was invited by the President of Seychelles to do a study of the efficacy of the labour laws of Seychelles.

Author of a book on a Swedish human resource law, his brief life sketch is part of the English study text book of 7th Class Students in Sweden -**“Studying English. SPOTLIGHT 7”**- and 8th Class students in Iceland -**“SPOTLIGHT 8- Lausnir.”**

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